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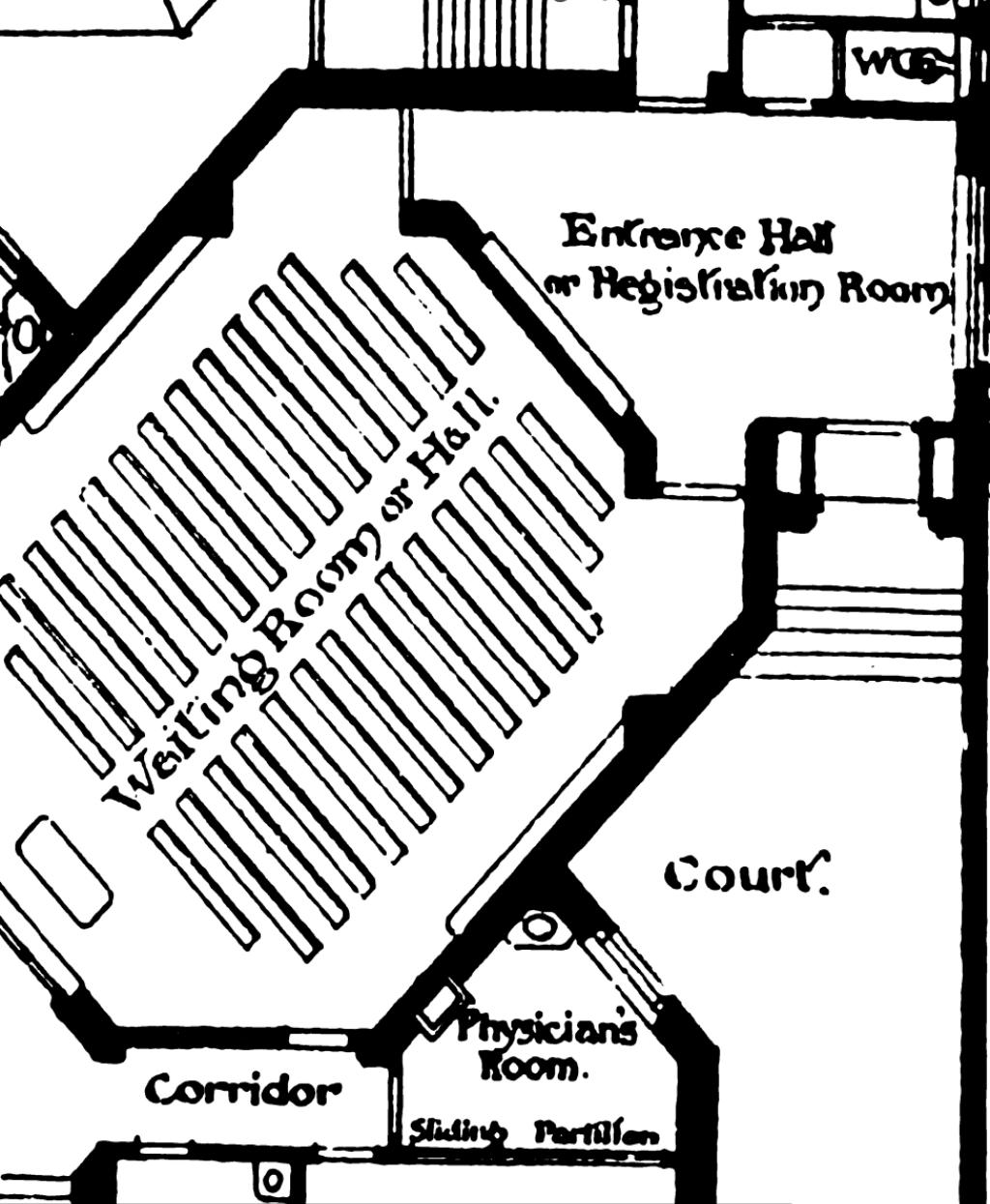
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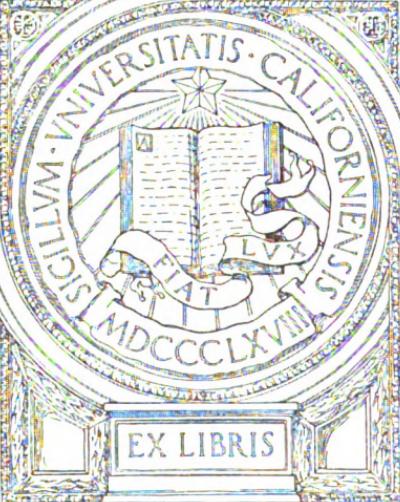
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Glasgow Medical Journal

Glasgow and West of Scotland Medical Association, Royal
Medico-Chirurgical Society of Glasgow

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THE

GLASGOW MEDICAL JOURNAL.

THE
GLASGOW MEDICAL JOURNAL.

EDITED BY

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ORIGINAL ARTICLES.

THE MEDICAL INSTITUTIONS OF GLASGOW

(Continued).

GLASGOW WESTERN INFIRMARY.

History of its Building.—The idea of a Western Infirmary for Glasgow, though realised only in 1874, may be traced back as far as 1846, when, owing to railway extensions that involved the removal of the old University buildings in High Street, it was proposed to erect the new University buildings farther west at Woodlands, near the site of the present Park Terrace. Facilities for clinical instruction were required, and ground was therefore obtained in the immediate vicinity as a site for an infirmary. The railway crisis came in 1849, however, and the scheme was abandoned.

The removal of the University was again proposed in 1864, and the scheme which the public were asked to support included an infirmary in which medical students were to obtain their clinical instruction. The rapid extension of Glasgow westwards, pushing with it along the Clyde its shipyards and manufactories, afforded another and an urgent reason for providing hospital accommodation in the western district. The property of Clayslaps was accordingly purchased as a site for the infirmary, but this was afterwards given to the Corporation of Glasgow in exchange for a portion of the lands of Donaldshill, to which was subsequently added ground to the north and west, which has secured for the infirmary an

open space of considerable extent on all sides. The total cost of the site was £23,136, 11s.

During the years 1868-69, plans were prepared and accepted for an infirmary to accommodate about 350 patients. It was considered expedient, however, to proceed in the meantime with only part of the building originally planned, and modified working plans were made which gave accommodation for about 190 patients, and included the whole of the buildings required for administrative purposes. An arrangement was now made with the Directors of the Dispensary for Diseases of the Skin, whereby twenty beds were to be set apart for patients suffering from affections of the skin. An effort was also made to have the Children's Hospital, which was proposed at this time, built in connection with the infirmary, but this was not successful.

The sum originally decided to be given to the infirmary from the fund being raised for the new University was £24,000, but this sum was afterwards increased to £30,000. About the beginning of 1871, it was resolved, at a meeting convened by the Lord Provost of the city, to ask for subscriptions specially for the infirmary, there being a general feeling that the infirmary would be for the public good, and that it would therefore need public support. At this meeting a large general committee was formed, and at a subsequent meeting of this general committee three committees were appointed:—“(1) A Subscription and Finance Committee to take the more immediate charge of promoting the subscription, collection, and expenditure of the funds. (2) A Building Committee to take the charge and direction of all matters connected with the laying off of the site and the erection of the building. And (3) A Committee on the Constitution, to consider the best plan for the future management of the infirmary” (*Vide First Report of Western Infirmary, 1873*).

Building operations began in March, 1871, and the foundation stone was duly laid with masonic honours on 10th August, 1871. The undertaking had progressed so far by the end of 1873 that a dispensary for out-patients was opened in January, 1874, and the infirmary wards were opened to in-patients on 2nd November of the same year.

From 1875 to 1880 there were over 200 beds available for patients. The growing demand for hospital accommodation is shown by the fact that in 1875 the average daily number of patients in the infirmary was 139, while in 1880 it was 199.5. In 1879 the munificent provision of £40,000, by the late Mr.

Freeland, rendered possible the carrying out of the original plans, and as a consequence, the doubling of the accommodation for patients. The erection of the new buildings was commenced in July, 1879, and the completed Freeland wing was formally opened on 1st June, 1881. A separate pavilion for the nurses, connected with the main corridor of the infirmary by a covered passage, was included in this extension. An erysipelas house, standing quite apart from all other buildings, and having accommodation for its own nurses, was afterwards built, and was opened in January, 1883.

Description.—The Western Infirmary stands on the highest portion of grounds upwards of 10 acres in extent, and the site, in itself a valuable one, is much enhanced by its direct continuity with the open grounds of the University and the West End Park. The building itself occupies about three-fourths of an acre, and consists of a central portion, containing the operating theatre, rooms for the resident medical staff, the kitchen, and also two wards; and two wings composed entirely of wards arranged in the form of pavilions, these wings being connected with one another and with the main building by three long corridors. The whole building is three storeys high, but owing to the slope of the ground, room has been found for the store, drug dispensary, receiving room for inpatients, and the whole out-patient department, on a ground floor below the level of the main corridor and front entrance. The ward pavilions open at one end upon an open space or hall, which practically isolates the wards on the same flat from one another. The other three sides of most of the wards are freely exposed to the outer air, thereby ensuring cross ventilation.

There are 21 large wards in all, 14 of which contain 18 beds, and the others 8, 12, or 16 beds. Adjoining these wards there are smaller wards, holding from 2 to 3 patients. There is accommodation for 400 patients in all. The average cubic space for each patient is 1,650 cubic feet, and the superficial space is 110 square feet. There is only one bed between the windows, which are 3 feet 3 inches in width, and the centre of one bed is 8 feet distant from the centre of its neighbour. At the near end of each ward are the sister's room and the ward kitchen. At the farther end of each ward are the bathroom with wash hand basins and the w.c.'s with slop sink and urinal, entered through a ventilated lobby. These rooms in the newer or Freeland wing have their walls and floors tiled. The wards are warmed by open central fires, the grates being enclosed in casings into which

air channels are led from the outer walls, fresh air at a comfortable temperature thus passing freely into the ward. Heat is also got from pipes, which are led round the wards and form coils at several places in their course. The water in these pipes circulates between a large boiler in the furnace house and several large air-tight copper tanks placed in the roofs over the wards. Each ward can be thrown out of the circuit at pleasure.

The wards are ventilated by means of four air shafts from each ward leading up to the aforementioned tanks. Fresh air is admitted at the fire-places and at each window recess, where there is a heating coil. Air can also be admitted when required at the ward windows. All the ward windows are double glazed.

A separate building to the west of the main building contains a medical lecture room, the pathological museum, the *post-mortem* room, the pathological chemical laboratory, at present used for the purpose of bacteriological research, and the mortuary.

The total cost of the Western Infirmary, including the site, was £135,141, 4s. 11d.; or, taking the total number of beds as 400, £337, 17s. 7d. per bed.

Accidents and urgent cases are admitted into the infirmary at any hour and without any fine, but ordinary applicants for admission have to bring a line of recommendation from a qualified subscriber. Each physician and each surgeon has a receiving day in rotation, on which day the corresponding resident medical officer is on duty. In cases of doubt as to admission, the superintendent has to be informed, and if the patient is rejected as unsuitable, a form is filled up stating the reason, and signed by the receiving medical officers. Patients kept in longer than forty days require to have their lines of recommendation renewed. The following is a table of the average residence and average cost of patients for 7 years:—

1st November to 31st October.	Average Residence.	Average No. of Occupied Beds.	Average Cost Per Patient.	Cost Per Occupied Bed.
1886-87,	37·2	364	£4 19 10	£49 0 3½
1885-86,	38·7	373	5 1 1	47 13 8
1884-85,	41·8	368	5 16 7	50 18 0
1883-84,	38	363	5 7 7	51 4 2
1882-83,	38	368	5 5 5½	50 13 0
1881-82,	32·6	311	4 11 3	51 1 9
1880-81,	35	284	5 0 5	53 11 2

In the out-patient department no line of any description is required, but all applicants for advice must be unable to pay a doctor, and if medicine is required they must afterwards make special application to the clerk who makes inquiries and grants the medicine to necessitous cases.

The nursing is done by nurses drawn from the educated classes and trained in the Infirmary. Three years are required for full training, during which courses of lectures on ordinary medical and surgical nursing, and on such special subjects as electricity and massage are delivered, and examinations have to be passed before the certificate is granted.

Medical students receive their clinical instruction in the wards from 9 to 11 A.M., and at the out-door dispensary in the afternoon. At present there are about 430 in attendance at the clinical classes of the various physicians and surgeons. The fees, which include the clinical lectures, are £21 for a life ticket, £10, 10s. for a year, £7, 7s. for six months, and £4, 4s. for three months.

The affairs of the infirmary are directed by a board of twenty-seven managers, nine of whom are elected by the subscribers, and the rest by such public bodies as the University, the Faculty of Physicians and Surgeons, the Town Council, the Merchants' and Trades' Houses, the Faculty of Procurators, and the Commissioners of four burghs.

The medical staff are elected annually, re-appointment being limited to seven years in the case of the dispensary physicians and surgeons. There are four visiting physicians, one physician for diseases of women, four visiting surgeons, three assistant physicians, five dispensary physicians, three dispensary physicians for diseases of women, three dispensary surgeons, two extra dispensary surgeons, one dispensary surgeon for diseases of the ear, one honorary consulting ophthalmic surgeon, one pathologist, one vaccinator, one dental surgeon. There are eight resident medical officers.

There are upwards of 120 of a resident staff, consisting of a superintendent, 8 resident medical officers, a matron, a matron's assistant or home sister, a night superintendent of nurses, 8 sisters, 58 nurses, a housekeeper, a cook, 4 kitchen maids, 5 housemaids, 8 laundry maids, about 23 ward maids, a sewing maid, a clerk, and a page. In addition to these there are non-resident, a chaplain, apothecary and 2 assistants, storekeeper, master of works, janitor, clerk, 6 porters, 2 enginemen, 2 gardeners, a joiner, and a gatekeeper.

GLASGOW HOSPITAL FOR SICK CHILDREN.

IT is only since December 1882 that Glasgow has had any special hospital for sick children. Much earlier, however, movements had been made in this direction, and as far back as 1867 a considerable sum of money had been raised at a bazaar held for the purpose of founding such an institution.* Before even this stage was reached, there had been, of course, the usual controversy as to whether a special hospital for children was in any sense required, and as to whether, if established, it might not rather be injurious than useful. In the daily newspapers a somewhat sharp controversy was carried on by various leading practitioners. This controversy is referred to in the minutes of the original promoters, kept by Mr Andrew Macgeorge, their secretary, whose minute book begins on 23rd January, 1861. The practical victory, however, as evidenced by the success of the bazaar referred to, lay with the advocates of the scheme. The actual facts seemed to point to the failure of a general infirmary to provide for the accommodation and adequate treatment of any considerable number of children at the earlier ages, especially of those affected with the forms of internal disease usually treated in medical wards. While those opposed to a special institution could point to many children treated, no doubt, with much success in the female *surgical* wards of the Glasgow Royal Infirmary (then the only general hospital in the city) it appeared that but few children of tender years were ever actually treated in the *medical* wards; indeed, their presence there in any number would become a serious tax on the nursing arrangements which, of course, were designed for adult patients, while the petulance and crying of sick children, when they did find their way into the general wards, inevitably disturbed the rest of their adult neighbours.

Although the sum of money collected from donations and from the bazaar, amounting to over £6,000 in 1870, made it certain that a Children's Hospital, in some form, would be established in the city, various circumstances tended to create delays from time to time.

At this period the University buildings were being

* This Bazaar, organised by the late Miss Clugston, was for the purpose of forming a Convalescent Fever Home and a Sick Children's Hospital. The financial statement, dated May, 1867, showed proceeds to the Children's Hospital amounting to £2,916.

erected on a new site in the west of the city, and it was certain that an Infirmary must be erected near these buildings for the use of the medical school, and this was actually opened as the "Western Infirmary" in 1874. Pending these changes, negotiations were made as to having a site provided for the proposed Children's Hospital near these new buildings; or, it was proposed by some, that special wards, or a special wing of the Western Infirmary, might be set aside for children, with advantage to both institutions and to the University medical school. The promoters of the Children's Hospital evidently feared that any such arrangement as special wards in a general hospital might be readily broken down under the strain of financial difficulties such as are always liable to arise in charitable institutions, especially as it was well known that efficient attendance on sick children is relatively costly, and that in a few years such special provision for children might cease to exist. The same objection did not exist to having a special building, under special trustees, within or near to the Infirmary grounds; but although this was understood to be agreed to, and even a site selected in concert with a University Committee, objections were raised, at the last, by the Senate, and the negotiations had to be abandoned. In the meantime, of course, much time had been lost.

A committee was at length appointed in 1880, with instructions to proceed with the formation of a Children's Hospital, the funds having by this time accumulated to about £8,600. A site was purchased in Garnethill, at the corner of Buccleuch Street and Scott Street. Two dwelling-houses stood there, with a certain amount of ground in front of them. One of these was then acquired, and the other has since (1887) been purchased, and now forms part of the hospital. The dwelling-house first acquired was converted into rooms for the administrative department of the hospital, and a new building of four flats was erected on the ground in front, facing Buccleuch Street. The low or basement floor was appropriated for kitchen and similar purposes. The other three flats contain one ward each. This disposition of the building prevented a full carrying out of all the modern ideas of lighting and ventilation (as one side, of course, could not have windows); but great care was taken to have ventilation attended to. Double open fireplaces in the centre of the wards afforded means of heating and ventilation, and the gas used in the wards was made, by means of a

ventilating shaft, to contribute to the purity of the air. Hot water pipes were likewise employed in the heating of the lobbies, &c.

The wards being thus close upon the streets—and not situated in an open space in the country, as might have been preferred by many—the windows were painted, at considerable expense and with artistic effects, so as to reproduce Caldecott's well known illustrations of nursery rhymes, each window being a special gift from youthful subscribers. The walls are lined with cream coloured tiles for 6½ feet from the floor, and above that are smooth and easily washed. The floors are polished. The general effect of the interior of the wards is pleasing. Notwithstanding the influence of the painted windows, the absence of green grass or trees, and, indeed, the want of space around, constitute great defects—inseparable, however, from the situation, which was deliberately selected by the promoters as being central, easily accessible, and so convenient, both for the poor of the city and for the medical officers in charge of the patients.

According to the *First Annual Report* (for 1883), the total cost of the hospital, including the site, fully furnished and equipped, was £12,510, 0s. 2d., or £215, 13s. 9½d. per cot. Of these cots there were 58 in the three wards, with 1 in the Isolation Ward. The cubic space per cot varied in the three wards from 736 to 836, the lower figure applying to the ward on the top flat. Some objection was taken to the cubic space in this ward being too small; and certain structural alterations were carried out in 1885, by which the cubic space was increased and some new windows added, which improved the ventilation.*

According to the *Fourth Annual Report* (for 1886), the following was the cost of treatment for that year,† the average daily number of patients being 51:—

Average cost of each cot for year (1886), . . .	£42	6	5·9
" total cost of each patient treated, . . .	4	6	0·8
" cost of each patient per day, . . .	0	2	3·8
" daily expenditure, . . .	5	18	3·1

The funds of the Children's Hospital were greatly

* The writer of this notice considers that the cubic space named above is considerably under what is desirable for a Children's Hospital—in particular, that the floor space in these wards is too small.

† This year is selected because by this time the hospital, as originally planned, was in full operation. By next year the hospital was somewhat extended, and the cost, as given in the *Fifth Report*, is somewhat less (£40, 15s. 9d.)

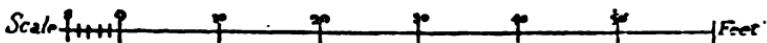
augmented by the success of a Fancy Fair, held in Glasgow, in 1884, under the presidency of the Duchess of Montrose. The total amount drawn was about £17,020, and the finances of the Fair were so carefully managed by Miss Grace Paterson, of Glasgow, that £15,763, 12s. 10d. were handed over from this source, the total amount actually obtained, including some important donations, being over £20,000. The objects aimed at in this effort were to provide funds for a small permanent endowment for the Hospital, and to assist in the erection and furnishing of an out-patient department.

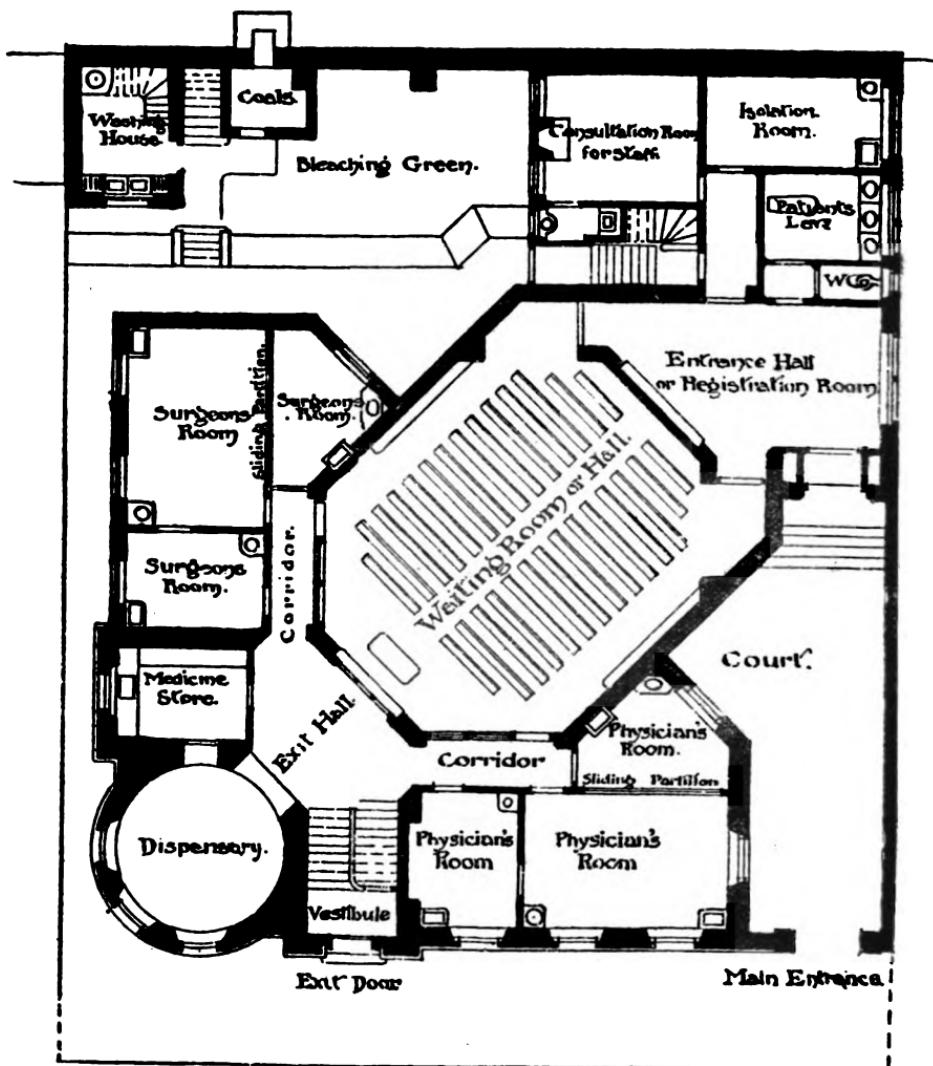
In 1887 the house and ground immediately to the west of the Hospital were acquired, and these proved valuable acquisitions. Considerable improvements were at once carried out, particularly as regards the accommodation of the nurses, the enlargement of the operating room, and the erection of more suitable washing houses; and, in addition, the main floor of the dwelling house, thus acquired, was converted into one ward, of L shape, nicely heated and lighted: some of the windows look out to the ground in front, and all of them in this ward are without paintings. This ward, giving 12 additional beds, was opened in October, 1887, chiefly through the generosity of Mr. Thomas Carlile, the Chairman of the Directors, and so the two physicians and the two surgeons on the staff have now one ward each under their care, instead of the surgical ward being divided between the two surgeons, as at the first, when only three wards were available. In addition to the four visiting physicians and surgeons, the honorary staff includes an assistant physician and surgeon, an ophthalmic and an aural surgeon, a dentist, and a pathologist.

The mortuary was the gift of the late Mr. James T. Whitelaw, who took a very active part in the erection of the Hospital, and who was, till his death, Chairman of the Board of Directors. It is very artistically designed, and it was hoped that this might have a soothing effect on the parents when they came for the bodies of their children who had died in the hospital.

The admission of patients to the Sick Children's Hospital is by "subscribers' lines," the plan followed at the two general infirmaries. Although this is the rule of the institution, the practice has been followed, from the first, of admitting cases sent in by any medical practitioner, the house surgeon obtaining from some of the directors the needful "line." Indeed, many cases sent by various persons

LANE.

Scale  Feet



West Graham Street.

**PLAN OF PRINCIPAL FLOOR OF OUT-PATIENT DEPARTMENT,
GLASGOW SICK CHILDREN'S HOSPITAL.**

and institutions are admitted at once if there happens to be room at the time and if the case seems suitable for *in-door treatment*. Not unfrequently, however, weak or ricketty children are sent up by benevolent visitors of the poor, whose cases are quite unsuitable for treatment in a hospital situated, as this is, in the centre of a crowded city. There are always cases waiting admission, and at times as many as 50 patients' names appear in the book as anxious for treatment, but not able to obtain admission for want of greater accommodation.

Although this Hospital has been open since December, 1882, for the treatment of sick children in the wards, it is only during the summer of this year (1888) that arrangements will have been completed for the treatment of out-patients. This delay has been unfortunate in various ways, and indeed, in the opinion of many, the establishment of an out-patient department ought rather to have *preceded* the opening of the wards. A very large proportion of the ailments of children, especially at the earlier years, can be better and more economically dealt with in the out-patient department, and a selection of suitable cases, only possible from the large field of out-patients, would make the treatment of cases in the wards more profitable in every sense. In the first years of this Hospital, not a few of the children admitted to the medical wards were scarcely suitable for treatment there. With the advance of time more suitable cases have of late been admitted, but with an efficient out-patient department a better selection of cases —*i. e.*, of cases pre-eminently adapted for in-door treatment, could be made, and so the expenditure of the Hospital applied to greater advantage.

The site secured for this important branch of the hospital is within five minutes' walk of the wards. It is near the corner of Cambridge Street and West Graham Street, and is readily reached by trainway from any part of the city. Great pains have been taken in the designs of the buildings to secure the comfort of the children and the convenience of the special staff to be attached to this department.

The patients are to be admitted by a court or covered way, where perambulators may be left protected from the weather, and this leads to a vestibule where they are to be registered and then transferred to the waiting-room, which is a large, airy apartment. On either side of this there are three consulting rooms, *en suite*, for the physicians and three for the surgeons. A dispensary for supplying

medicines is situated near the exit door, which opens to the street without interfering with the entrance door or the due circulation of the patients. In an upper flat there are rooms for the specialists who may be required at times for special cases, and there is likewise accommodation for one or two nurses or others in charge of the building, who may have to assist in the preparation of the out-patients for the medical officers. Ample and suitable lavatory accommodation has been provided for the little patients and their attendants. The building has been erected from plans by Messrs. Douglas & Sellars, architects, Glasgow, who also prepared the plans for the Hospital.

The organisation of the out-patient department is now under consideration (June 1888). The staff will, of course, be distinct from that of the wards. It is understood to be the intention of the directors to have this department open for advice to sick children without the formality of subscribers' lines, but to take measures for securing, through the Charity Organisation Society or otherwise, that only those unable to procure medical advice for themselves should be registered as patients of this institution. Medical visitation of patients at their homes is not contemplated.

In the foundation of this Hospital the interests of medical education and of the various schools of medicine in Glasgow were kept in view, and it was hoped that its central position would facilitate the attendance of students. As yet these hopes have not been realised. A few students have indeed attended the practice of the hospital,* but its distance from the University and the difficulty students experience of finding time for any extra courses in the present crowded state of the curriculum probably account for the small number of students who have as yet availed themselves of this hospital's practice. With the establishment of the out-patient department, where practice among children can be really better learned than in the wards, some further interest in this important branch may be aroused among the students; and if the curriculum is lightened, or the period of study extended, it is quite certain that many students would gladly seek to acquire some practical knowledge of those diseases which, in the actual work of the profession, bulk so largely. For the study of the infectious diseases of children, the Fever

* One or two ladies from the London Zenana Medical College have attended and received instruction at this hospital while supplementing their practical studies by a residence in Glasgow.

Hospital at Belvidere presents a field probably unrivalled in the Kingdom, but almost wholly neglected by the medical students of Glasgow.

There is in the Sick Children's Hospital a part of the buildings detached from the general wards containing an isolation room, where a child can be placed when presenting suspicious signs of infectious disease, or kept for a time after these have declared themselves, till removal can be effected. In a few instances of infectious disease arising in the hospital, especially where serious surgical operations had been performed, and when removal from the hospital might have been dangerous, a child has been treated "in isolation", till the period of infection was past. Adjoining this little ward there is accommodation for a nurse, who is also placed "in isolation" while attending such a case.

The treatment of infectious diseases, however, is not attempted in this hospital, and whenever they appear the children so affected are promptly removed to the Fever Hospital at Belvidere.* The medical staff of the hospital and also the directors were alike unanimously of opinion that infectious diseases should not be admitted to the Children's Hospital if recognised as such, and that all such cases arising in the wards should be removed with as little delay as possible, telephonic communication rendering this, as a rule, very easy, whenever the diagnosis is established.

The only exception made was in the cases of diphtheria (or so-called croup), but only when it seemed to require surgical interference. It was felt that in such cases, which might be sent at any hour in a state of great urgency, a recommendation to take the child to the Fever Hospital, three or four miles distant, might imperil seriously the chances of successful treatment, and that the lesser evil was to deal with such cases with as much separation as circumstances permitted of. Recent experience has seemed to show that this course is perhaps attended with somewhat greater risk than was supposed at first. Some of these cases have been treated in the isolation ward, and so the danger has been greatly lessened, at least as regards the other children.

JAMES FINLAYSON, M.D.,
Visiting Physician.

* For a full account of the Fever Hospital, Belvidere, see the Paper of Dr. J. B. Russell, on this subject.

BARONY PARISH HOSPITAL,**BARNHILL.**

THE Barony Parish has a population of 289,457, and covers an area of 13·91 square miles, or 8,907 acres, with a rental of £1,574,020. The medical work carried on under the Poor Law falls into two parts, the in-door work at the parish hospital and asylum, and the out-door work at various dispensaries throughout the district.

The large institution at Barnhill, Springburn, on the north-east side of Glasgow, contains the poorhouse and hospital, and it may be mentioned in passing that the former contains 1,049 beds, the inmates being classified as infirm, turn-out, and test cases. The institution was opened in 1853, and originally had licensed wards for the treatment and cure of lunatics; but when the Asylum at Woodilee, Lenzie, was opened in 1875, the insane cases were removed thither from Barnhill, and these wards were re-arranged for the reception of children. The hospital contains 380 beds, and the number of patients treated during 1887 was 3,191, the average daily number in the hospital being 328, and the death-rate being 9·9 per cent per annum. Patients are admitted on orders and certificates granted at the Parish Chambers, 38 Cochrane Street, subsequent to inquiries made by inspectors; and unless the parties are houseless, or otherwise in need of immediate hospital treatment, the cases are first brought before Daily Relief Committees, who decide what is to be done. An important change in the treatment of the sick took place in 1882, when trained nurses were first employed, for before that time the nursing was undertaken by pauper inmates, who were badly qualified for such a duty. The nursing staff, under a lady superintendent, consists of 13 trained nurses and 12 probationers; and the last undergo a two years' training, and, if found suitable and properly qualified, are then registered as trained nurses by the Board of Supervision, Edinburgh. There is a medical superintendent and an assistant physician, both resident.

The out-door work is executed by nine medical officers, attached to different districts, one of them giving his entire time to these duties. There are three public dispensaries, where medicines are supplied. But, besides this, the officers see urgent cases at their own private dispensaries and houses, and also visit the patients at their homes. During 1887 there were 8,101 out-door cases treated, involving 11,565 consultations at the dispensaries, and 6,288 visits to the

patients' homes ; the number of prescriptions issued being 13,554. The officers have to certify all applicants for parochial relief, including lunatics, and attend all paupers within their respective districts, whether belonging to the Barony Parish or otherwise. Parties are attended to on presentation of a certificate, issued at the Parish Chambers to all applicants for medical relief who are homeless and destitute, or requiring immediate attention, and also on paupers presenting their pay-cards.

C. F. P.

THE TOWN'S HOSPITAL OR CITY POORHOUSE.

THIS institution is for the poor of the City parish of Glasgow, and is under the management of the City Parochial Board. It is conjoined with the Parochial Lunatic Asylum, a short account of which is given in another section. They are situated in Parliamentary Road, to the north of the business centre of the city, and not above five or six minutes' walk from the Royal Exchange. Though they have separate buildings and grounds, the offices, stores, and kitchen are common to both, and in these important respects they are parts of one establishment. Together, inclusive of their airing grounds, they occupy an area of about eleven acres, and are for the most part enclosed by a wall. Of late years, through the growth of the city, they have become surrounded on all sides by streets and buildings of various kinds, and especially on the east are much exposed to the fumes and smoke from chemical and other works.

The name, "Town's Hospital," was given to the original poorhouse and asylum of Glasgow, the site of which was on the north side of the river Clyde, not far from the present courthouses and jail. An old minute book bears that on 29th January, 1734, the Directors "agreed that the house thereafter go under the designation of the Town's Hospital;" and this designation, kindlier and more considerate in its significance than poorhouse or workhouse, has been applied to it up to the present time, a period of more than a century and a half.

When the city had increased in size, it was found that the accommodation in the "Hospital" was inadequate for the wants of the parish, and the Parochial Board in the year 1843 acquired by purchase the nucleus of their present property from the Directors of the Royal Lunatic Asylum, who had just erected the palatial edifice at Gartnavel for the Insane

of Glasgow and the West of Scotland, and removed their patients to it.

The centre building of the joint institution is therefore the old Royal Asylum. It is a very substantial structure, and consists of a great central staircase, surmounted by a dome, which is one of the most conspicuous objects in Glasgow. Opening on this from three floors, besides the basements, are four wings which extend outwards in different directions. This plan of construction as an asylum had the serious objection that it presented facilities for suicide by jumping over the balustrade into the well of the stair; and report says that such suicides did occur.

When it passed into the hands of the Parochial Board, most of the wards were devoted to the accommodation of the more respectable of the ordinary poor, but a portion of the ground floor was reserved for the harmless insane. Soon afterwards, an hospital for the sick to the south, and a test-house on the north of the central block were erected, and the former was extended towards the east, about twenty years ago, by the addition of a section of the old Magdalene Institution, for whose inmates more suitable provision had been made in the new establishment at Maryhill.

Excluding the insane, the City Poorhouse or Town's Hospital is licensed for 1,611 ordinary inmates, with their officials, and throughout the winter it is full to overflowing. The City is the central parish of Glasgow, and the Royal Infirmary, Night Asylum, Central Police Office, Sailor's Home, and large Model and numerous private lodgings for the poorer classes are situated within its bounds. Owing to this fact a larger proportion of the admissions into its poorhouse than into the corresponding establishments of the other two great parishes into which Glasgow is divided—the Barony and Govan—are seriously disabled by sickness. Contrary to the general impression, the amount of acute disease, especially of organs in the chest, is very large; for very many of the denizens of the lodging-houses, &c., when they are prostrated by illness, have no means of obtaining subscribers' lines to the Infiraries, which are necessary for their admission into them, and have no resource save the poorhouse.

There are twenty-five wards in the department for the sick, which contain 428 beds; but in addition, it is usual to convert two or three of the ordinary into sick wards during the winter and spring months, owing to the increase of patients. The average daily number under medical treatment during the year ending 14th May, 1888, was 444. In the course of a

year, from six to seven thousand cases are treated, but a large number of these have only trivial ailments. The annual mortality ranges from four to six hundred, many dying within a week after admission. The average weekly cost per patient is about five shillings. There is also a lying-in ward, and the annual number of births is from eighty to a hundred. Formerly it was much higher, but the erection of the new Maternity Hospital at a short distance has been the means of withdrawing many women who otherwise would have gone to the poorhouse. Though not much can be said in favour of the lying-in ward, it has almost always enjoyed a striking immunity from all forms of puerperal septicæmia, and the women have usually made excellent recoveries.

The medical staff consists of a resident physician and a qualified assistant, who devote their whole time to the medical work of the institution. A consulting physician to the hospital visits daily, and he has likewise the medical charge of the asylum. There are also two dispensers, whose time is fully occupied in making up the medical prescriptions for so large a body of sick.

It is clear that where there is such an immense mass of disease, with a large mortality, there must be an excellent field for clinical and pathological research. In this connection the question arises, Could this, and possibly also the other two poorhouses of the city, not be utilised for medical tuition? Advantage has been taken of the City asylum for this purpose, the present consulting physician having for very many years given clinical instruction in mental disease, often to large classes of students. No great difficulty would probably be found in making similar arrangements for the study of medical cases at the Town's Hospital, provided it were shown that the clinical material for the teaching of students in this part of the city was in any way deficient.

ALEX. ROBERTSON, M.D.,
Consulting Physician.

GOVAN POORHOUSE.

THE Govan Combination Parish—the population of which in 1881 was 238,000, and from its rapid growth is this year estimated at 260,000—is furnished with a large poorhouse for ordinary paupers, and a parochial hospital for the treatment of the sick poor, at Merryflatts, three miles from Glasgow, on the Renfrew road. The whole is under one administration.

The Hospital contains 240 beds for the reception of medical, surgical, and obstetric cases; and the average number of cases treated yearly is about 850. The nurses are unpaid, and consist entirely of such women as can be selected for the purpose from the ordinary inmates of the Poorhouse. They are overlooked and guided, and their imperfect knowledge is, as far as possible, supplemented, by a superintendent and assistant superintendent. These are trained nurses, and are responsible for carrying out the instructions of the medical officers.

W. R. WATSON.

THE VICTORIA INFIRMARY OF GLASGOW.

THE origin of the movement for the erection of a hospital on the south side of Glasgow may be briefly stated as follows. In May, 1871, Dr. Eben. Duncan read a paper before the Southern Medical Society, entitled, "A Plea for a Hospital on the South Side of Glasgow, based on the inadequacy of the existing Glasgow Infirmarys." At that meeting a committee was formed, including most of the members of the Society, to promote the scheme of hospital extension advocated in that paper. To start the subscription list, Dr. Scott, of Rutherglen, offered to subscribe the sum of £500, an offer which he has since implemented. After two years' active exertion by the medical men practising in the Southern district, the sum of £6,000 was subscribed, and promises of support were given by the principal employers of labour.

In April, 1881, a large and influential public meeting was held, and it was unanimously resolved that "a Public Hospital should be established and erected in a convenient locality on the South Side of Glasgow." A committee was appointed to give effect to the resolution, and the Corporation of Glasgow was approached regarding the grant of a site, the result being that a very fine site of 4½ acres, in the Queen's Park, was generously granted by the Corporation. It may be interesting to note that the site granted is the spot on which the battle of Langside was fought 300 years ago.

Having acquired a site, the committee invited architects to submit designs showing how this ground could be best utilised for hospital purposes; and after careful consideration, the committee recommended the plan of Messrs. Douglas & Sellars of Glasgow—the task of adjudicating on

the various plans having been deputed to Mr. Carrick, the city architect, and Dr. J. B. Russell, the medical officer of health for Glasgow.

While the necessary arrangements for building were being made, the death of Mr. Robert Cooper of Cathcart took place, who, by his will, left the residue of his estate for the erection of an Infirmary and Convalescent Home on the South Side. This delayed proceedings for several years; but an arrangement was ultimately effected, according to which the infirmary receives a sum of £10,000 now, and a reversion of about £40,000 additional on the expiry of certain life interests.

A second public meeting was held last year, at which it was announced that Her Majesty, the Queen, had allowed the infirmary to be called by her name, in commemoration of the jubilee year.

A sum of £17,000 has now been subscribed by the public, excluding the £10,000 to be received from Mrs. Cooper; so that, after paying necessary expenses, amounting to about £1,000, the committee are in possession of £26,000, with the reversion of £40,000.

An Act of Incorporation has been obtained from Parliament, which contains a clause permitting the managers to grant facilities for the teaching of medicine and the allied sciences.

There is an important clause in the constitution of the Infirmary, which provides for the election of workmen governors, so that the working men who are subscribers may have direct representation on the Managing Board.

The site is about half a mile south of the present municipal boundary, but is conveniently near to important industrial centres which are certain to increase and extend in the future. It will, however, be within the municipality when the extension of the boundaries, which is believed to be in the near future, takes place.

The building, which is now in course of construction, is designed according to the most recent principles of hospital planning and construction, and it also possesses some novel and interesting features. When completed the scheme will provide a fully equipped hospital, with accommodation for 250 beds, arranged in four main ward blocks of three floors, each complete in itself, and connected only by a wide corridor. The blocks are thus practically isolated in the first instance, and the wards in the same block are, as far as possible, isolated from each other by a ventilated passage, interposed between the ward and the common staircase.

The administrative block and the kitchen and stores department are in separate buildings connected with the ward blocks by corridors. Only one block, containing three wards for 18 beds each, and the administrative block are being erected in the meantime. Part of the latter block, however, will be temporarily used for wards, and provision is made for about 80 beds in all. The other ward blocks will be erected as the necessity for them arises.

J. C.

CITY OF GLASGOW FEVER AND SMALL-POX HOSPITALS, BELVIDERE.

IN Glasgow, as in other towns, the treatment of infectious, as of other ailments, was, until a comparatively recent date, left to the managers of the general hospitals supported by voluntary subscriptions. The Royal Infirmary was opened in 1794. In 1350 the Leper's Hospital of St. Ninian was built and endowed by a lady of the family of Lochow. It stood at a little distance from the south end of the old bridge of Glasgow. References are made to it as late as the beginning of the seventeenth century, and a local reminiscence still remains in "St. Ninian" Street. Provision was made in successive epidemics out of the burgh funds for the treatment of those stricken with plague. In 1646, wooden huts were erected on the Town's Muir, at a considerable distance from the town, to which the infected were transported, and where they received medical care. In 1818 the first great epidemic of the modern plague, typhus fever, reached its height. In that year it supplied 60 per cent of all the patients treated in the Royal Infirmary. In 1829 the Managers built a separate fever house, which was enlarged in 1832 to 220 beds. But this was a mere nucleus for the accommodation and administrative organisation necessary to meet the needs of Glasgow in frequent epidemic expansions of typhus and small-pox, and rarer invasions of cholera and relapsing fever. Not merely private subscribers, but public authorities, municipal and parochial, all depended for help, or discharged their obligations to those for whose treatment in sickness they were legally responsible, through the agency of the Royal Infirmary. From time to time the Managers erected temporary "fever sheds" on their own grounds, or took charge of temporary district hospitals in the city and suburbs, either erected by

themselves or by the magistrates. They had even to meet an action for interdict, raised by neighbouring proprietors, against the use of a district hospital in Bridgeton, and at their own charges carry their case to a successful issue through several appeals. Nor were they adequately subsidised by the authorities for their services. They had constantly to struggle against the drain on their charitable resources maintained by public authorities, who sought thus to save their rates from a legitimate charge.

As might be supposed, such a system was not successful in preventing epidemics. During its continuance the utmost limit of fever hospital accommodation ever provided, before or since, in the city of Glasgow was reached. In 1847 typhus prevailed with unexampled severity. After the Infirmary was exhausted, the City Parish turned the old Town's Hospital, on the Clyde Side, into a fever house, and the Barony Parish put up fever sheds in Anderston. In one way or another 1,254 beds were provided. In that year 11,425 cases received hospital treatment.

The lesson of these events was not missed by the rulers of Glasgow, although it was learned slowly and was at first misread. In extenuation of this local misapprehension, it must be admitted that it was encouraged by the errors of general legislation. Epidemics were regarded as natural phenomena, not to be averted, but only to be met by *pro re nata* provisions. In the Nuisance Removal Acts, beginning with 1856, it was provided that on the outbreak of epidemics the Privy Council might, by order, confer extreme powers on Local Authorities to adopt certain measures for their suppression, which included the provision for the sick of "such medical aid and such accommodation as may be required." In the Glasgow Police Act of 1862 similar local powers were obtained, to be evoked upon the report of the medical officer "that epidemic, endemic, or contagious disease prevails or exists and threatens to prevail" in any part of the city. In the winter of 1864-65, typhus compelled Dr. Gairdner to call upon the Authorities to provide temporary accommodation. After considerable difficulty in procuring a site, a pavilion hospital, containing 136 beds, was erected, from plans drawn by Mr. John Carrick, Master of Works, off Parliamentary Road, and opened 25th April, 1865. Although much valuable time was lost, this hospital proved to be of such service that when the Police Act fell to be revised in 1866 a clause was inserted binding the Local Authority "to maintain the present hospital erected by them

in Parliamentary Road," and conferring powers to enlarge the same or provide and maintain other hospitals. Glasgow thus took the lead in Scotland in providing and binding itself to maintain a permanent fever hospital. Next year the Scotch Public Health Act was passed in which all Local Authorities were empowered to make the like provision. In 1869, typhus necessitated the extension of Parliamentary Road Hospital to 250 beds. In 1870, relapsing fever invaded the city, and this accommodation was speedily exhausted. After the usual trouble in obtaining a site, during which the epidemic spread rapidly, from cases being treated at home, the estate of Belvidere, extending to about 32 acres, was purchased for £17,000, converted to a ground annual of £680. Although the intention was ultimately to erect a permanent structure, the necessities of the occasion were so urgent that wooden pavilions of the most temporary description had to be run up. These were occupied as completed, until, in three months, 366 beds were provided and filled. The old mansion house and offices accommodated the administrative departments with some alterations and extensions.

The present Small-Pox Hospital was the first erection in permanent material at Belvidere. The hospital off Parliamentary Road was reserved for small-pox after the relapsing fever epidemic subsided, but, owing to the rapid extension of the town in its neighbourhood, it had come to be closely environed with dwelling houses. A grave suspicion soon arose that the disease was disseminated in the vicinity, which led to a resolution in November, 1873, to build a Small-Pox Hospital. A deputation was appointed to visit and inspect the best examples of hospital construction in England. After they had reported, the plans, as finally adjusted, were submitted to the Board of Supervision and approved, without alteration, in June, 1874. In the following November, operations were begun, and the hospital was completed and formally opened on 5th December, 1877. It contains 150 beds, with 2,000 cubic feet of space for each. There are 10 wards arranged in 5 totally isolated pavilions. These, with the usual administrative accommodation, also broken up into detached blocks, all one storey in height, except the house for the higher officials, which is two storeys high, are enclosed, with ample recreation space, within a wall. The Small-Pox Hospital has thus no connection with the Fever Hospital excepting that there is a central system of boilers, from which steam is conveyed to both

institutions for the purposes of heating and the supply of warm water for washing, &c. The total cost of this hospital was £30,235, exclusive of site or the share of the central heating apparatus.

It would be tedious to narrate the history of the permanent Fever Hospital, as it has grown up from year to year by substitution, addition, and reconstruction into its present form. It began, as we have seen, with temporary wooden pavilions, and large sums were spent in maintaining these for some years and providing administrative accommodation. There was thus a complete Fever Hospital which has been entirely swept away. Through all the operations by which this has been effected, it was of course necessary always to keep up a working hospital. Various results necessarily follow from such a history; one, that the total amount of money expended at Belvidere considerably exceeds the sum represented by the existing buildings; another, that even the present Hospital has cost more than it would have done had it been built at once from a general plan; and yet another, that it is not so well proportioned in all its parts as if these parts had been contemporaneously erected. By a recent vote of the Town Council, it has been resolved to expend £10,000 in providing a new washing-house, dispensary, stores, and cottages for the house-steward and subordinate male servants. This will bring up the total expenditure on the present Fever Hospital and grounds to close upon £90,000.

Belvidere is situated about $2\frac{1}{2}$ miles east of the Royal Exchange, on the extreme verge of the Municipal boundary. It is bounded on the N. by London Road, on the S. by the Clyde, on the E. by the pumping station and reservoirs of the Corporation river supply works,* on the W. by private property as yet unbuilt upon. A photograph of Belvidere House, as well as a history of the estate, will be found in *The Old County Houses of the Old Glasgow Gentry*, where we learn that, during over a hundred years, it has passed through the hands of several of our merchant notabilities. The grounds possess great natural beauty, rising gently as you approach the Clyde, where they are broken by three small glens, once the beds and sloping banks of three streams. The whole estate is well wooded, especially along the avenue and western boundary, where the rooks have recently established themselves in the tops of the old beeches. The convalescents are allowed

* Clyde water for use of factories.

to wander at will over the many beautiful walks, and in summer it is one of the most pleasant of sights to see the children rolling about on the grassy slopes of the glens, and the seats, placed here and there, occupied by groups of people who for the first time in the lives of many are tasting of the sweets of Nature. At the rear of the Fever Hospital, several acres are laid out as a flower garden, with a green house, from which the wards are supplied with potted plants. Flower plots are distributed here and there between the pavilions and in other open spaces. At a distance of some four miles southwards the wooded heights of the Cathkin Hills close in the horizon.

The whole buildings, except that occupied by the medical and nursing staff and matron, are built of brick. The wards are distributed in pairs, in 13 totally isolated pavilions, all running N. and S. They are 60 feet apart laterally, and are placed in rows of 2, 3, 4, and 4, in succession from the bank overlooking the Clyde towards London Road. They have thus, to one standing in their midst, the appearance of a large, uniformly laid off village. Each pavilion is only one storey in height, with a well-ventilated basement beneath, so that the level of the ward is reached by a flight of steps. The two rows of four pavilions are separated by a range of buildings running E. and W., the centre of which contains the kitchen, one storey in height, and, like the pavilions, open to the roof. At either end there is another storey, the eastern accommodating various stores and the dispensary; the western, the under servants' bedrooms. At London Road there is a main lodge controlling to the W. the entrance to the Small-Pox Hospital, and to the E. the approach to the Fever Hospital. At the S. end of this approach is the Fever Lodge and Enquiry Rooms for patients' friends, with the Dorcas Society's stores in an attic storey, and running N. along the avenue, the Morgue, with room for funeral parties, with entrance from the road, so that hearses, &c., do not come within the Hospital enclosure. Just inside this gate is the washing-house and laundry, with the suite of steam boilers to the S., a cremator for soiled beds, and the central coal depot. The boilers are 3 in number, double-flued, and in size 7 feet 6 inches by 26 feet 4 inches. Further S. are a smithy, carpenters' shop, and fire-engine station. South-westward, some 40 yards, are the stables, ambulance shed, &c. Still westward is a large three-storey stone block, erected on the

CITY OF GLASGOW HOSPITALS. BELVIDERE.

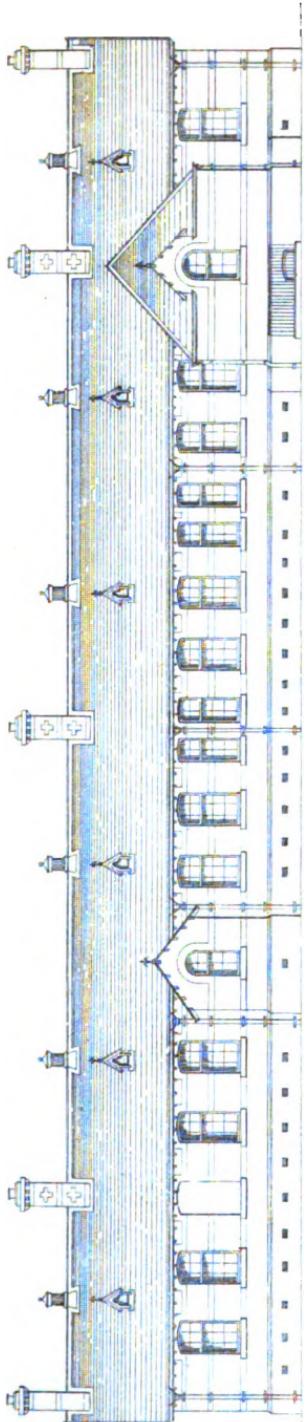
BLOCK PLAN.



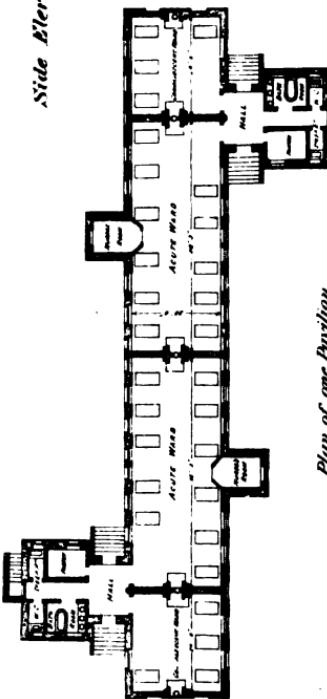
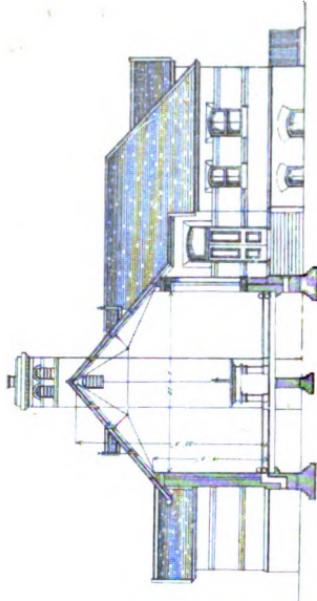
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John Smith,
Office of Public Works
Glasgow, June, 1888.

CITY OF GLASGOW HOSPITALS. BELVIDERE.



A Side Liberation.



Plan or one Partition.

site of the old mansion house, containing 84 single bed-rooms for nurses, with recreation rooms on each flat. These occupy the lateral wings, while the centre is reserved for the matron and medical staff. In front of this building there is a spacious lawn, with tennis court, bounded southwards towards the Clyde by a sloping bank planted with trees.

There are 390 beds on the scale of 2,000 cubic feet for adults; but as a large proportion of the patients are children, for whom 1,200 feet is sufficient, a much larger number of patients can be accommodated. The dimensions of every pavilion and ward are exactly the same; but as they were erected at different times, sundry little but important differences exist. The two southern pavilions were built last, and the description of one will suffice. It has a basement 8 feet from ground to floor level. The outside length from end to end is 168 feet; the outside breadth, 26 feet; the height, from ground level to ridge of roof, 32 feet. There are two wards, each divided into a convalescent and acute ward. A flight of steps on both sides gives access to a vestibule, from which, on one hand, are the entrances to these subdivisions, while, on the opposite side, is the pantry, opening directly off the passage, and a lobby, to the left of which are the bath room and water closet, and to the right a steep-room for soiled linen, these last being farthest from the wards. All these appurtenances are therefore completely isolated in a projecting annexe. The entrance and annexe of each ward are on opposite sides of the pavilion. On the side opposite to the entrance of the acute ward is a nurse's duty room, where there is a "poison press" and napery press, with chairs and a table. The front projects into the ward with sloping roof and glass sides, giving a full view of the ward. The internal dimensions are as follows:—*Acute Ward*—length, 56 feet 3 inches; *Convalescent Ward*—length, 24 feet. In both the breadth is 22 feet; the height to the wall head, 14 feet 6 inches; to the roof tree, 23 feet 9 inches. The floorage of the acute ward is 1,237 square feet; of the convalescent, 528 square feet. The total cubic contents of the acute ward are 23,500 cubic feet; of the convalescent ward, 10,000. The number of adult beds is 11 for the acute and 4 for the convalescent ward; but in the case of children 20 cribs are allowed.

All the flooring of the wards is of Dantzic oak waxed. The vestibule and annexe are laid with tiles. The walls are coated with Keene's cement. Some wards are oil painted and

varnished, but the more recent are treated with light blue or green distemper, which can be frequently renewed. All the woodwork is varnished. Care is taken to avoid flat surfaces giving lodgment for dust. The principal rafters are, therefore, of light T iron, and the ties of thin rod iron.

The heating is by hot water circulating in pipes which are led round the walls above the floor. This is derived from two hot water tanks heated by steam, and placed beneath the entrance hall of each ward, to which access is obtained from the outside by a stair leading to the basement. There are also open fires at either end of each ward. Pavilions with numerous windows and open to the roof are very difficult to warm sufficiently during winter. Experience at Parliamentary Road soon showed that it would be necessary to check radiation by the large glass area, and accordingly the device of double glazing each pane with an interval of three-quarters of an inch of air space was adopted. The wards at Belvidere are kept at 55° to 60° in the coldest weather. There are heating coils in the vestibule and bath room.

Fresh air is admitted by direct openings beneath the windows, which are numerous, so that it passes over the heating pipes. These openings are controlled by an arrangement which admits of gradation and cannot be interfered with except by the nurse. There are skylights on opposite sides of the slope of the roof, Boyle's ventilators fixed on the ridge, and ventilating shafts alongside the chimneys, with openings controlled by moveable louvres at the apex of the roof.

The principles kept in view in furnishing are simplicity, smooth surfaces, and facility of removal and cleaning. The bedsteads are wrought iron, the tables and chairs hardwood varnished. In children's wards, iron cribs are provided, and pigmy forms and tables suited to their size. All cupboards, presses, &c., are moveable on iron rollers like American trunks. The mattresses are stuffed with straw, the pillows with chaff. They are renewed for every new patient and whenever soiled. Wood wool was recently tried as a substitute for straw, but was found speedily to break down, and, on account of the consequent expense and larger quantity and more frequent renewal, was not adopted.

The nurses are graded in three classes—probationers, nurses, and head nurses. After a year's probation, during which she attends lectures on Fever Nursing given by the assistant physicians, the probationer is submitted to a written

and *viva voce* examination. If she passes satisfactorily, she gets a "Certificate of Proficiency in Fever Nursing," first, second, or third class, signed by the physician superintendent, and becomes a nurse. The wage of a probationer is £18, and advances gradually to £30, all getting two uniform suits per annum for ward use alone. To work a purely pavilion hospital such as Belvidere, all its parts distributed over a large area, and to maintain the large extent of flower garden and pleasure ground attached, requires a large staff. The distribution of coals is done by an open lorry, on which all the coal boxes are placed and driven round the wards. The food is distributed by a covered van, divided into compartments, each of which holds the allowance for a ward. The ashes are collected daily from portable circular covered ashbins countersunk in the ground adjacent to each ward, an arrangement which combines convenience and perfect sightliness and inoffensiveness. The whole institution is under the care of a physician superintendent, who is assisted in the general business of the hospital by a house steward, and in the medical charge by two permanent medical assistants. These are supplemented, as occasion requires, by extra assistants. In fact, there are seldom less than three assistants, and usually in the autumn and winter there are four or five. These appointments are in great request among the best students of the Glasgow school. They are only given to qualified men, and by preference to such as have been house surgeons in either of our Infirmarys. They remain from one to two years. The present physician superintendent, Dr. J. W. Allan, was appointed in August, 1875, and has contributed much by his urbanity, good management, and rich experience to win and to retain the confidence which Belvidere undoubtedly possesses both with the profession and the public.

In calculating the cost of treatment, the expenditure on the Small-Pox Hospital is always thrown in with that on the Fever Hospital. There having been only rare and isolated cases of small-pox for some years, 120 beds have been constantly used for scarlet fever, and only one pavilion, barricaded off with the whole administrative buildings, for small-pox. A small staff is maintained there. The last financial year for which the accounts are made up (1st June, 1886, to 31st May, 1887) may be taken as an illustration of the expenditure, number and nature of cases treated, &c. There was not a single case of small-pox treated, but £558 were expended in the Small-Pox Hospital; £15,945 in the

Fever Hospital; 2,790 cases were treated, including 1,270 cases of scarlet fever, 504 of measles, 204 of enteric fever, 176 of hooping-cough, 87 of typhus, 134 of erysipelas, diphtheria, chicken-pox, and puerperal fever; the balance being made up of nursing mothers and cases of mistaken diagnosis. The average residence over all was 43·3 days (which is high, owing to the regulation residence being 8 weeks for scarlet fever); the average daily number of patients, 332; the average cost of treatment per patient, £5, 18s. This does not include interest on capital expended in building and furnishing hospitals, but does include ground annual and all current expenditure in maintaining the whole estate and working the hospitals. Taking one year with another, the average mortality is: For typhus, 13 per cent; enteric fever, 12 per cent; scarlet fever, 12 per cent; measles, 5 per cent; hooping-cough, 12 per cent; and over all cases, 10 per cent.

In the N.E. corner of Belvidere estate, the central washing and disinfecting establishment for the city is situated, occupying an area of 2,500 square yards. In those times when the treatment of infectious diseases was left to the Royal Infirmary, whatever disinfection was carried out at the houses of the patients was also performed by the Directors. In their Annual Report for 1824 they refer to this fact. The first washing house established by the authorities was a small place with a few tubs in a close off the High Street. This was opened in 1864. When Belvidere was acquired half of the existing Fever Hospital washing house was reserved for this purpose. This soon proved inadequate, and the present separate establishment was finished, in 1883, at a cost of £8,400. It is essentially a washing house, fitted up with the best mechanical appliances, to which the articles to be treated are driven by a service of vans. There is a Lyon's disinfecter, in which mattresses, clothing, &c., which cannot be washed, are disinfected, a cremator for burning straw, chaff, wool, flock, and other articles, "whose end is to be burned," and a carpet-beating machine. It has just been resolved to spend £800 in improving the arrangements, and especially in adding appliances, devised by the Sanitary Inspector, for treating everything which is ultimately to be washed with a solution of bichloride of mercury, which, it is expected, will make the articles innocuous before passing them on to the washers. On an average, 1,000 articles per day are treated in one way or another. The hospitals, the washing house, and the Sanitary Office in the city are all in telephonic connection.

All has not been told that it is of importance to know regarding the preventive treatment of infectious disease when the material equipment, the hospitals, washing houses, disinfecting apparatus, &c., of a Local Authority have been described. The question still remains—How are they used; on what terms are the constituency admitted to their benefits? So soon as the authorities of Glasgow wakened up to their own responsibilities, and relieved the charitable resources of the Royal Infirmary of the burden of providing hospital accommodation for the community, they recognised that so long as the Infirmary received infectious diseases from the suburbs, other Local Authorities were permitted to shirk their statutory obligations. Not only conterminous Sanitary Authorities, but all the parishes and burghs for many miles around, exported their infectious diseases into Glasgow. It became, therefore, a fixed policy to oppose and protest against this system. Gradually the Directors of the Infirmary cut off this assistance, and the landward authorities were compelled to appeal to the Local Authority of Glasgow for aid. This was granted provisionally, on condition that active measures were meanwhile adopted to carry out the intention of the legislature that every district should provide for itself. In this way a wholesome stimulus was applied, the influence of which is now manifest in the erection of hospitals, &c., not only round the city but in distant parts of the neighbouring counties. Within the municipality, the benefits of the whole hospital and disinfecting appliances are open to the inhabitants without charge special to the occasion. The advantages of this position have been worked out from experience. Every form of charge incidental to the existence of infectious disease has been found to be a hindrance to the frank and prompt appeal for or acceptance of assistance which the greatest good of the public requires. The last exception to the free system was the case of paupers, the cost of whose treatment was charged to the parishes. This also was given up in 1882, since which date every case of infectious disease within the area of the municipal rates, absolutely without social distinction, has been dealt with at the cost of the rates. Patients are removed from our poorhouses as well as from our west end mansions and disinfection carried out without charge. The result has been a harmony, uniformity, and completeness in the preventive treatment of infectious disease which has satisfied everybody of the correctness of the policy pursued.

In withdrawing from general hospitals, which are the recognised centres for the clinical instruction of medical schools, the whole treatment of infectious diseases, Local Authorities seriously impair the scope of the teaching for which, under the old method, those hospitals afforded ample and convenient opportunity. Recent discussions in the General Medical Council have directed forcible and just attention to this matter. There can be no doubt that it is directly in the interests of prevention of epidemic disease, which is the prime object of the function of Local Authorities, that the clinical material which now is to be found only in their hands should, as far as possible, still be made available for teaching purposes. The Local Authority of Glasgow have never lost sight of this part of their duty. There are three ways in which they have endeavoured to make their hospitals serviceable in this regard:—(1) By training a select number of young medical men as Assistants into special skill in the diagnosis and treatment of infectious diseases. (2) By carefully instructing nurses in the management of patients suffering from these diseases. In addition to the ordinary members of the nursing staff, by special arrangement with the Glasgow Sick Poor and Private Nursing Association, a limited number of women are received, after passing through a general hospital, for a year's instruction at Belvidere. (3) The wards are open, without charge, for clinical instruction, to all the Professors and Lecturers in the Medical Schools of Glasgow. By arrangement with the Superintendent those gentlemen take their students in detachments round the wards as often as they wish during the session, demonstrating the rashes and diagnostic points of the different diseases. These opportunities are largely taken advantage of. In addition, since 1884, Dr. Allan has constituted a special class, hitherto without fee, during the summer. The distance of the Hospital has, probably, along with the multifarious demands now made upon the time of medical students, prevented the attendance from being so numerous as might be expected. It is to be hoped, however, that the unique advantages of Belvidere as a clinical field, and the extension of underground and suburban railway communication, will gradually develop this useful clinique. But the duty as well as the interest of the Local Authority extends further than mere benevolent neutrality towards, or passive tolerance of, teaching and research in reference to infectious disease. General hospitals now equip more or less liberally, and maintain

pathological departments, recognising the indirect relation to cure of the scientific investigation of disease. Infectious disease has been withdrawn from the sphere of this scientific investigation ; and it behoves the Local Authority not merely to permit, but to promote and support every kind of enquiry which will extend our knowledge of the etiology, pathology, and treatment of the diseases for the treatment of which they are responsible. I am not without hope that, when the expenditure still proceeding at Belvidere to perfect the hospital proper has ceased, the Glasgow authorities will favourably consider the equipment of a pathological laboratory fitted up with apparatus for chemical investigations, and supplied with all the means for cultivating, staining, and examining micro-organisms.

J. B. RUSSELL,
Medical Officer of Health, Glasgow.

N.B.—A Block Plan of the Fever and Small-pox Hospitals, with Elevation and Sections of a Pavilion, have been specially prepared by the Master of Works, and photo-lithographed at the cost of the Local Authority, to accompany this paper.

JOINT HOSPITAL,

KNIGHTSWOOD.

THIS hospital, for the treatment of cases of infectious disease in the burghs of Maryhill, Hillhead, and Partick (with a population of over 55,000 altogether) was opened in 1877. There are two pavilions with wards for the different fevers, and in 1887 a new pavilion, quite isolated from the others, was provided in the grounds for cases of small-pox. Inclusive of this the hospital can accommodate about 100 patients, and the average number of cases admitted annually is about 160, including patients from landward parishes admitted under special arrangements with the hospital authorities. Cases are admitted free from the burghs from which the rates, which support the hospital, are drawn ; and patients are sent for on notice being given to the authorities. There is a resident medical superintendent, and the matron has under her four to six nurses, according to requirements at different times. The board of directors is chosen from the Commissioners of the three burghs.

COMBINATION FEVER HOSPITAL,
GOVAN.

THIS hospital for infectious cases was opened in 1883, and is provided with 50 beds. The population from which the patients are drawn numbers about 70,000, and includes the burghs of Govan and Kinning Park and portions of the Govan parochial district. As it is maintained by the rates, admission is free, and patients are sent for whenever notice is given to the authorities. The average number treated annually has been about 140, but this is rapidly increasing. There is a resident medical superintendent, and five nurses are under the matron's direction.

THE GLASGOW LYING-IN HOSPITAL.

A HOSPITAL for Lying-In Women was opened in Glasgow about the year 1792; but, for some reason, it was interdicted by the Magistrates immediately after being opened. No further attempt was made till the year 1834, when, at a meeting held in the Town Hall, it was resolved "That, in consequence of the great and rapidly-increasing population of Glasgow and its suburbs, a public lying-in hospital has been long a desideratum in this city, for affording the necessary accommodation and assistance to indigent married females, under circumstances which are at all times attended with suffering, and frequently with danger, and where the want of such accommodation and assistance has often proved fatal to the mother, to her offspring, or to both. That such an institution is also wanted for the purpose of affording to students of medicine the means of practical improvement in this important department of their profession, and for placing the Glasgow Schools of Medicine upon a footing with those in the other parts of the Empire." That the directors of this new hospital had in view the abuse of medical charities is obvious from the following, taken from the rules for the new institution:—"That this institution may not in any degree lead to the encouragement of improvidence, none shall be admitted but those who are married and are really destitute, being unable to pay for medical attendance, and otherwise proper objects to be admitted to the benefit of this asylum. These

conditions shall be expressly vouched in the printed forms that shall be issued for the recommending of patients." "To poor women who may wish to be attended in delivery at their own houses, that attendance shall be furnished to them upon leaving their addresses at the hospital, along with a certificate from an elder, district surgeon, or other respectable person cognisant of the case, stating that the applicant is unable to pay for medical attendance." In order that "rigid propriety and decorum" might be observed, not more than four pupils were to be present at any ordinary case; whilst, to prevent the Faculty of Physicians and Surgeons having too much control over the hospital, one of the medical directors must be "not a member of the Faculty." A modest beginning was made by the acceptance on the part of the directors of the following offer:—

"GLASGOW, 31st October, 1834.

"MR. JOHN ALSTON,—SIR,—The second flat and garrets of the old Grammar School, in the Grammar School Wynd, belonging to the heirs of the late James Rea—the garrets to be divided in the way pointed out to the Committee—you can have for the Lying-In Hospital from Whitsunday, 1835, till Whitsunday, 1836, at Thirty Pounds a year. The garrets and that part of the second flat, except the present schoolroom, you can have when finished at the same proportion of rent till Whitsunday, 1835."

The first appointment as ordinary accoucheur, or medical superintendent, was conferred on Dr. James Wilson, father of the late Dr. J. G. Wilson, who was afterwards Professor of Midwifery in Anderson's College. The former died in 1857; the latter was on the staff of the hospital from 1855 till 1881—these gentlemen having thus been connected with the institution for nearly fifty years.

The Hospital was opened on the 10th of December, 1834. The first patient was admitted on the 15th of the same month; but the first confinement did not take place till one month after. The first year's experience was not a happy one. The Report states that "one child died soon after its birth of erysipelas. There were two deaths of the mothers, both from inflammatory attacks incidental to the puerperal state. The disease itself was understood to be an epidemic, prevailing to a certain degree at that time in the city and suburbs. The domestic servant of the Hospital suffered from a similar attack, and also died, and the matron, from fatigue,

alarm, and actual indisposition, was unable to discharge the duties of her office. The medical attendants, in these circumstances, after due deliberation, resolved to shut up the hospital till it could be thoroughly cleansed and fumigated." They thought also that it was "on many accounts advisable to manage this untoward and alarming event with as little public notice and discussion as possible."

Not only had the staff at this early period of the history of the Hospital to contend with difficulties inside the institution, but the great moral question as to the possible encouragement of vice by the admission of unmarried women had to be faced at the very outset. It was only, however, in the Twenty-Fifth Annual Report that the Directors had the courage to announce that the Hospital was for "poor and homeless lying-in women." The *rule* at the opening of the Hospital was a stringent one. None were to be admitted but those who were married. This is still the practice in many of the lying-in hospitals of London, and materially diminishes their death-rate, whereas, in the Glasgow Maternity, unmarried women have been always admitted. True, at first they were only admitted as cases of emergency, the medical staff, to their credit be it said, not having sufficient "inhumanity to the unfortunate," as they put it, to refuse. Two lives, they said, were imperilled, one of which at least was an innocent one. They promised, however, in "ordinary cases" not to go in "direct opposition to the moral views of the contributors who disown giving their aid to an institution which tends in any degree to encourage vice and dissipation." The contributors had not yet learned to act on Hamlet's advice to Polonius regarding the players—"Use them after your own honour and dignity: the less they deserve the more merit there is in your bounty. Take them in."

The medical staff of the Hospital at this time (1835) consisted of two consulting physicians, two visiting physicians, and four out-door physicians. One of our best known Glasgow physicians, the late Dr. J. G. Fleming, was appointed one of the out-door physicians, in 1836, after two unsuccessful applications for this office. Dr. Fleming served the Hospital for many years afterwards, for some time having been consulting surgeon and finally a director, being of the greatest service to it, and taking a warm interest in its affairs till his death.

The history of the institution during its early years reveals an almost uninterrupted struggle against outbreaks of disease in the Hospital, and the want of

funds to carry on the work. Repeatedly had the house to be shut "for cleansing"; and so low were the funds at one time that the landlord had to agree to accept of only twenty pounds of annual rent. Finally, even this rent could not be paid; a cheaper house was taken in St. Andrew's Square, ten of the beds were to be offered for sale, and the most "rigid economy" was to be enforced. More trials, however, followed; reflections were cast on the management, and an opposition lying-in hospital was threatened. But at that time (1843-4), when everything seemed against them, matters began to mend. The number of students increased, clinical lectures were commenced, the finances improved, a great increase took place in the number of cases, the Hospital became healthier, and a new and larger house was taken in "an adjoining land." The previous house is stated to have had "only one moderately sized room for the accommodation of patients of all states and stages," and yet 176 women were confined in this "hospital" during the year 1843-4.

That the new house was not looked on as more than a temporary home for the institution is evident, for no sooner had they become settled in it than a building fund was spoken of, and the sum of £17 was given to start with. In 1851 this fund had reached the respectable sum of £500, and a committee was appointed for the purpose of looking out for a building suitable for the institution. That this was necessary the still frequent closing of the hospital, on account of the outbreak of disease, testified.

It is interesting, in connection with the frequent appearance of disease amongst the inmates, to note how seldom the forceps were used about this time. During the two years preceding November, 1857, 688 women were confined in the Hospital, and in all these labours the forceps were used only *three* times. Compare this with the two years preceding November, 1887, in the present hospital, when 736 women were confined, and 115 of these were forceps cases. That this divergence of treatment must be attributable not simply to a growing confidence in the value of timely instrumental help in labour, is evident from the fact that amongst the former cases in no instance was craniotomy necessary, whereas amongst the latter this operation had to be performed no less than eleven times. An interesting question arises out of this last mentioned fact. Are abnormal labours more frequent now, or is the credit of our present Hospital so great that serious cases are naturally

drawn to it? Probably both of these causes operate in bringing about such contrasts.

In 1856 the annual report states that twice during the year the hospital had to be closed on account of "malignant puerperal fever." During part of the year every one admitted was seized with fever, and an urgent demand was made for a new hospital. This demand the funds of the hospital at the time were able to meet; but it was not till January, 1860, that the old house on the site of the present building—at the corner of North Portland Street and Rottenrow—was purchased as a new hospital. Many alterations were made in the building so as to fit it for a lying-in hospital, and, *compared with the previous house in St. Andrew's Square*, the directors were justified in congratulating themselves in "having reared a hospital quite adequate to the requirements of the city." There were 21 beds, but the average space per patient was only 230 cubic feet. It cannot, therefore, be matter for surprise that, although for two years the health of the inmates was good and the death-rate reduced, septic disease soon after prevailed, the death-rate increased, and in the autumn of 1863 the hospital had to be closed for three weeks. Dry rot was discovered and removed, and the Hospital thoroughly cleansed, and for some time no death nor protracted recovery occurred. The satisfactory state of the Hospital soon induced the directors to begin a dispensary for diseases of women. This venture was eminently successful; but it became apparent, after a few years, that the accommodation was inadequate for the double purpose, and the dispensary had to be given up.

The Hospital continued for years to give great satisfaction. In 1872, out of 323 indoor cases only one patient died; but in the following year, out of 312 indoor cases, eight patients died, three of these at least from septic disease, and the Hospital had to be closed and fumigated.

The out-door work of the Hospital had always been an important one, and the number of women attended at their own homes had increased at this time to nearly one thousand.

About this time dissatisfaction with the building was being felt by the Medical staff and by the Directors. During one year the Hospital had to be closed three times: perforations were afterwards discovered in the sewer pipes, and it was felt that the house was "done," and a new building required. After much deliberation it was decided to take down the old house and build a suitable Hospital on the same site. During the building operations, the patients were

accommodated in the Parliamentary Road old Fever Hospital, and this proved a most satisfactory arrangement.

The present building, which has cost nearly £8,000, was begun in November, 1879, and opened in January, 1881. Mr. Robert Baldie was the architect, and he gave effect in his plans to all the latest improvements which were suggested to him by the hospital physicians, by those in charge of other similar institutions, and by Dr. J. B. Russell, the medical officer for the city.

The following description of the New Hospital is taken from an account of it published at the time of its opening:—

“The style of architecture adopted is Early English Domestic Gothic. The sky line is agreeably broken up by stone dormers rising above the parapet. The principal entrance is from North Portland Street by a Gothic arched doorway, with pediment, having the Glasgow coat-of-arms and the dates when the Hospital was founded and rebuilt. Towards the Rottenrow the building rises to a height of three storeys and attics. At the north end of Portland Street the height is the same, a lower storey being brought in, as the street falls to the south. The external walls are all of stone, two feet thick, faced with square dressed rubble masonry, and finished at the top with a solid stone parapet. The outbuildings are commodious and complete. Entrance to them is obtained by a large gateway under the south end of the Portland Street front of the main building, which leads into a courtyard paved with asphalte. The outbuildings, which are ranged along the west side of this yard, consist of laundry, washing house, disinfecting room, and *post-mortem* room. These are entirely detached from the Hospital. The floors of the offices are paved with Val-de-Travers asphalte. On the level of the courtyard is the lower storey of the main building, which is to be used as a lecture room for students. Although the principal entrance to the lecture room is by the gateway already mentioned, there is also internal communication with the Hospital. Entering by the principal door, and going up a few steps, an inner door, nicely fitted up with simple coloured glass, is reached. It opens on a small well lighted hall, with the staircase in front, and broad lobbies running south and west. Opening on the south lobby, on the left, are the matron’s parlour and bedroom, and the resident house surgeon’s room, with bedroom and bath room and small dispensary attached. Opening off the lobby leading west are the board room, and the reception room, fitted up with a bath. A door-

way at the end of the passage opens upon a small cross lobby, leading into the kitchen, scullery, store room, &c., and also giving access to the courtyard, thus enabling servants to pass from the kitchen to the offices without entering the main lobby. Proceeding up the main staircase, it is found that each of the first and second floors are occupied by the wards for patients, a confinement room and a nurse's room. The wards, which have 13 feet ceiling, give accommodation for 18 patients on each floor, allowing about 1,500 cubic feet of space for each patient. Sanatorium, and bedrooms for pupils, nurses, and servants occupy the upper floor. Access to the various floors is by a large open stone stair of short flights, and square landings of easy ascent, well lighted and ventilated, with windows on two sides. Access from the stair to the various wards is by wide corridors, branching to the right and left of the main staircase. The lavatories for the several floors are placed in a wing behind, and are entirely disconnected from the main building, having a well lighted and ventilated lobby between them and the hospital, cut off by double doors. The walls of the lavatories are finished with white enamelled brick. The fittings of the lavatories consist of hot and cold spray and plunge bath, &c. To prevent danger from sewage gas in any part of the Hospital, the whole of the siphon traps are ventilated and carried above the roof. There are no water closets within the main building, and all the baths and sinks within it discharge into an open grating before reaching the drain pipe. From the elevated situation of the buildings the sewage has a quick discharge into the street sewer, but to prevent the return of sewage gas the main pipe is fitted with a patent trap, which is charged with animal charcoal and ventilated with a pipe carried up to the ridge. The interior furnishings of the building are plain and substantial. The wood work is of yellow pine, stained and varnished; the walls of the wards are all finished in plaster on brickwork, no lath or strapping being used; and the floors are all pitch pine, in narrow breadths, stained and varnished. To aid ventilation, the upper part of the windows is hinged to fold inwards, and over the doors to all the wards there are hinged fanlights. The heating is by open fireplaces and low pressure hot water pipes carried through all the wards and round the lecture room, and there is also a coil enclosed in a case in the staircase. The fresh air, which is admitted by openings fitted with valves at the level of the floors, is warmed by coming in contact with the hot water pipes before admission to the wards. The vitiated

air is carried off by openings fitted with valves in the corners of the wards, immediately under the ceiling, which are connected by separate flues with a hot air extracting chamber, formed in connection with the chimney from the boiler of the heating apparatus. The air of the chamber is rarefied by heat from the boiler, being carried up in an iron flue inside the chimney stalk, with an air space all round. The coil of hot water pipes is so arranged that it can be used separately for summer ventilation when the other parts of the apparatus may not be required."

Each of the floors, in which are the wards, is provided with a separate confinement room and a nurse's room. The object of this arrangement is to permit of only one series of rooms being occupied at a time, the other series being meantime cleaned, aired, and fumigated. This fumigation is done by burning sulphur, which is also the agent used in the disinfecting room. Antiseptics are regularly and extensively used in the Hospital, and the strictest cleanliness on the part of the whole of the nursing and medical staff is enforced.

The present medical staff consists of a consulting surgeon, a senior consulting physician, a consulting physician, two obstetric physicians, two assistant obstetric physicians, two pathologists, two resident house-surgeons, and seven out-door or district physicians. With the exception of the resident house-surgeons, who are elected quarterly, all the medical officers are elected annually, the obstetric physicians being ineligible for one year after having served for eight years, and the assistant obstetric physicians after having been in office four years.

The number of confinements during the past year amounted to over 2,000—367 in-door, and 1,639 out-door—and the nature and importance of the work may be understood by a reference to the last Annual Report. Here it will be found that for the 2,006 cases, the forceps were required 149 times, which gives (when the 19 cases of miscarriage are deducted), 16.8 per cent for the in-door, and 5.4 per cent for the out-door cases. Craniotomy was performed 5 times in-door and 3 times out-door; giving a percentage for the in-door cases of 1.38, and for the out-door cases 0.184. Version was 3 times performed inside the Hospital, and 13 times in the out-door department, whilst premature labour required to be induced in 3 of the in-door cases. It is evident, therefore, that in great part, the serious cases gravitate to the in-door department; some of these are moribund on admission, and these deaths are included amongst the maternal deaths

occurring in the Hospital. Under these circumstances a mortality of rather under 2·32 per cent, which is the average since the opening of the present building, cannot be considered a high one.

It may be mentioned also, that at no time during these seven years has it been found necessary to close the Hospital; whilst it is stated in the last Annual Report, that "No woman died in the Hospital during the year who could be said to be in a fair state of health when she entered it."

Several cases of Cæsarian section have occurred in the Hospital. One such operation was successfully performed during the spring of this year. The mother and child are still alive and well.

Having thus far considered the work done in the Glasgow Lying-in Hospital in the department of obstetrical practice, something may now be said on the important subject of obstetrical teaching as it is carried on at present in this Hospital, which is the only school of practical obstetrics in the West of Scotland. The teaching is divided into two branches—viz., for nurses and for students.

Before detailing the arrangements for teaching students, it may be mentioned that from 30 to 40 women are annually trained in this Hospital as ladies' nurses and midwives. A woman entering the Hospital for this purpose has to pay a fee of 5 guineas, with 8s. per week for board. She is taken on trial for one month, when, if found suitable, she completes her three months' residence in the Hospital, and must then pass an examination, obtaining her diploma if successful. Three lectures by the physicians are delivered to the nurses during each week; but their practical training is largely in the hands of the matron, who is herself possessed of a midwifery diploma. Each nurse must have attended at least thirty cases of labour, partly in-door and partly out-door, during her residence.

About 130 students join the Hospital annually. In order to supply each student with six cases, if possible, during the fortnight in which he resides near the Hospital, the matron is expected to arrange with the student, on entering, the time for taking out his cases. Before being permitted to attend out-door cases, all students are required either—(1) to produce a certificate from a Lecturer on Midwifery, whose lectures are recognised by a university or other licensing body, of their having diligently attended a systematic course of at least forty lectures on midwifery, and stating that the lecturer has examined them, and that they are, in his opinion,

qualified to attend cases; or (2) to produce a certificate from one of the Physicians of the Hospital of their having attended the course of lectures given at the Hospital, and stating that the physician has examined them, and that they are, in his opinion, qualified to attend cases; or (3) to produce, in the event of their not having attended one such course of lectures, a certificate that they have undergone an examination on the anatomy of the female pelvis and of the foetal head, the signs of pregnancy, and the phenomena and management of natural labour, before such a Lecturer on Midwifery, or before either of the Physicians of the Hospital, and that at such examination they had acquitted themselves to the satisfaction of the examiner, and that they are, in his opinion, qualified to attend cases. The students are, however, urged to attend, whenever it is possible, a complete theoretical course of instruction in Midwifery prior to joining the Hospital.

No student is allowed to attend a case on his own account till he has been present at three cases with the out-door house-surgeon—a fully qualified medical man—whose duties are to give him practical instruction at these cases. Should any abnormal condition occur during the course of labour at his future cases, or should there be any complication during the puerperium, the student is instructed to send at once for the out-door house surgeon, or for one of the district physicians. He is also expected to attend at the Hospital three days a week at the visiting hour of the physician on duty, during the months of May, June, and July, to receive practical and clinical instruction. Though he may see ordinary cases of labour in the Hospital, and is expected to be present at abnormal in-door labours, all the cases he attends are in the out-door department. Every case attended out-door, whether by nurse or student, is visited during convalescence at least once by the out-door house surgeon, who keeps a record of these visits for the physician's inspection.

By arrangement with the matron, qualified medical men can have the opportunity of gaining additional experience in obstetrics without fee, by taking cases in connection with the out-door department.

The directors have recently opened a West End Branch at 491 St. Vincent Street. Patients are not received into the West End house, but are attended from it, free of payment, at their own homes. Students will continue to take their first six cases from the Hospital in

North Portland Street; but will have an opportunity of taking additional cases from the branch.

The Hospital is managed by a board of 27 directors, 10 of whom are annually chosen by qualified contributors, the remainder being representatives from the various public bodies. The institution is, with the exception of fees from nurses and students, entirely supported by voluntary contributions—annual subscriptions, life subscriptions, and legacies.

SAMUEL SLOAN, M.D.,
Consulting Physician to the Hospital.

THE GLASGOW EYE INFIRMARY.

170 BERKELEY STREET.

THE Glasgow "Eye Infirmary" was founded in 1824 by Drs. Monteath and M'Kenzie, but the success of the institution, which was commenced on a very small scale in North Albion Street, near the old University in High Street, is due, in great measure, to the professional ability of Dr. William M'Kenzie, whose name is so closely associated with ophthalmology that a brief sketch of his career may be given.

In 1815, after obtaining the diploma of the Faculty of Physicians and Surgeons of Glasgow, Dr. M'Kenzie proceeded to London, and afterwards to the Continent, where he remained till the beginning of 1818. While still a student, he seems to have had his attention specially directed to the anatomy and physiology of the eye, and his interest in the practical department of ophthalmology was stimulated by the letters of his friend, the late Professor Rainy, who went to London and Paris before him, and who was particularly impressed by the successful eye operations performed by Roux, as well as by the superiority of the French ophthalmologists, especially in the treatment of Egyptian or military ophthalmia, which then and some years after scourged the French and British armies.

The greater part of his sojourn on the Continent was spent in Paris and Vienna, although he visited other medical schools, and spent a short time in making an Italian tour. During his residence in Vienna, where he was a pupil of the celebrated Beer, he devoted himself chiefly to ophthalmology; but he did not confine his attention solely to this subject. While in Paris he devoted a large portion of his time to the study of

anatomy, a subject in which he was specially interested, and he did so with the view of ultimately becoming a teacher of anatomy.

On his return to this country, he became a member of the Royal College of Surgeons; and, after failing to come to terms with Sir William Adams in a proposed assistantship, and in securing Brodie's Anatomical theatre, he commenced practice in London as an oculist, "balancing," as he says in his diary, "between anatomy and ophthalmology, I would choose that which I would cultivate with the greatest advantage to my fellow-men." His success in London as a practitioner and lecturer on eye diseases was not encouraging, as we learn that he began his first course of lectures with an audience of *three* and his second with *five*, three of whom became pupils; and, being disappointed in regard to a popular lectureship on anatomy, for which he was an applicant, he left the Metropolis and returned to Glasgow.

In October, 1819, he was elected Professor of Anatomy and Surgery in Anderson's College; and, in 1828, he was appointed Lecturer on the Structure, Functions, and Diseases of the Eye, in the University, an appointment which he held till his death, in 1868. While connected with Anderson's College, he delivered extra-academic lectures on the same subject, and founded the Eye Infirmary.

In 1830 he published the first edition of his great work on *Diseases of the Eye*, which made him famous throughout Europe. This book was both a cyclopædia of the ophthalmology of that date, and a work full of most valuable original observations, largely drawn from the records of the Infirmary.

On the death of Dr. Monteath, in 1829, Dr. Rainy was appointed as his colleague. Besides being a competent ophthalmologist, Dr. Rainy was an accomplished physicist and chemist; and, in this capacity, afforded important aid to Dr. M'Kenzie, who was not by any means strong on these subjects. It may be interesting to note that the now well known Pagenstecher's ointment (yellow precipitate) was one of the mercurial preparations experimented on by them, but it was given up on account of its instability, the red oxide, which has the same chemical constitution, being adopted, a preparation still in use at the Infirmary.

In 1835 the Infirmary was removed to College Street, and in 1852 the Directors purchased a house in Charlotte Street, formerly the town residence of David Dale, a well known Glasgow merchant. The situation was admirably chosen, being close to the Glasgow Green, a large open space; but

as no material change was made in its internal arrangements, the cubic space and ventilation were not such as could be approved of now, there being thirty beds distributed over four rooms.

When the University was removed to Gilmorehill, the question of reconstruction, or the erection of a new hospital, was brought before the Directors, and it was finally decided to build a new hospital in the western district of the city, it having been previously ascertained that the greater number of the patients came from that district, the site fixed upon being also convenient for students attending the University.

A new Infirmary, adapted for 70 beds, and with all the most advanced modern appliances, was erected in Berkeley Street, at a cost of about £14,000, and was opened in 1874, the architect being Mr. Burnett, who designed the Western Infirmary. The old hospital in Charlotte Street was retained as a dispensary for the benefit of the inhabitants of the east end and the poorer parts of the city.

During the following ten years there was a great increase in the number of out-door patients in connection with both institutions, and a proportionate increase of in-door patients. The insufficient accommodation and the crowded state of the wards having been brought under the notice of the Directors, two large wards with operating room were added, bringing up the number of available beds to 120.

The large population connected with the numerous industries of the city and surrounding districts supply a large number of patients, so that the clinical material of the Hospital is both great and varied. During last year (1887), 8,449 patients were treated at Berkeley Street and 6,281 at Charlotte Street. Of these, 1,154 were admitted as hospital patients, and 1,591 major and minor operations were performed in the course of the year.

The Infirmary is supported entirely by voluntary contributions, the greater part of the income being obtained from the subscriptions made by those employed in the public works in and around Glasgow. The ordinary income in 1887 was £2,543 and the ordinary expenditure was £2,805. At present those applying for advice and treatment require to be provided with a subscriber's line; but, although this is the rule, no one who is destitute and in need of the benefits of the institution is refused assistance.

The present surgical staff consists of a senior surgeon, three surgeons, and three assistant surgeons. There are also an

honorary consulting surgeon and a resident house-surgeon. During the summer months, lectures are delivered at Berkeley Street, by the senior surgeon, and at Charlotte Street by one of the surgeons. The fee payable by students attending the clinique and lectures during the session is one guinea. The visiting hour, at both dispensaries, is 1 o'clock, and operations are performed, at Berkeley Street, every Wednesday at 2:30, and every Saturday at 2 o'clock.

FREELAND FERGUS, M.B.,
Assistant Surgeon.

GLASGOW OPHTHALMIC INSTITUTION FOR DISEASES AND INJURIES OF THE EYE.

126 WEST REGENT STREET.

THIS institution was founded in 1869. The present house was acquired in 1872, and has since been twice enlarged. At present it contains 35 beds, an operating theatre, and all necessary accommodation for in and out-door patients, and also the necessary domestic accommodation for the matron, nurses, and servants. There are also the waiting and other rooms required for the dispensary work, which is carried on daily from 1 to 3 P.M.

About 3,700 patients apply for advice and medicine annually, and of these about 460 are admitted into the hospital for treatment.

The visiting staff consists of a consulting physician, a physician, a surgeon, and two assistant-surgeons; and a course of instruction for medical students is given during the summer and winter sessions.

The institution is supported by voluntary contributions, which amount to from £1,200 to £1,500 per annum. The house property and funds in possession of the institution amount to about £15,000. It is managed by a board of directors, the consulting physicians and physician and senior surgeon being members of the board of management.

J. R. W.

THE GLASGOW EAR HOSPITAL.

28 ELMBANK CRESCENT.

IN 1872, the late Dr. J. Patterson Cassells opened a dispensary designated "The Glasgow Dispensary for Diseases of the Ear,"

for the gratuitous treatment of necessitous persons suffering from all forms of Ear Disease and Deafness; and this dispensary ultimately developed into the "Glasgow Ear Hospital."

The late Dr. D. Patrick was the first practitioner who devoted himself exclusively to the practice of aural surgery in Glasgow, but he does not appear to have been associated with any public dispensary. As a specialist, in aural surgery, he practised from 1845 till 1865. The late Dr. Robert Corbett conducted for two or three years, about 1858-60, a dispensary for Diseases of the Ear.

When the dispensary presided over by Dr. Cassells was opened, there were two similar dispensaries in Glasgow, one being the Ear and Skin Dispensary in John Street, which had existed, in its double capacity, for nine years; but it was soon arranged that the ear department of that dispensary should be closed. The second dispensary was in Montrose Street, and was conducted by the late Dr. D. Dewar till his death in 1873; it was in existence about nine years.

In 1877, an aural department was opened in the Western Infirmary, and, in 1878, in the Royal Infirmary.

From 1873 the "Glasgow Dispensary for Diseases of the Ear" was the only one in the city solely devoted to the treatment of such diseases; and its success may be indicated by the fact that 2,569 cases, representing 12,845 consultations, were treated during the first eight years of its existence. At this period it was resolved to extend its usefulness by providing twelve beds for the treatment of the more severe cases of ear disease, and in October, 1880, it was formally opened as a hospital as well as a dispensary. The late Professor Andrew Buchanan presided on the occasion, and gave to the company assembled a demonstration on the Structure and Functions of the Ear, declaring the Hospital open "to those of every tongue and clime, of every faith, and to those who have no faith, provided they are suffering from Ear Disease."

At the death of Dr. Buchanan, the directors recorded their sense of the loss in the following minute:—"The Directors desire to record their sense of the great loss which the Hospital has sustained in the death of their esteemed President, Dr. Andrew Buchanan. They recall with gratitude the fatherly interest which he took from the outset in the Institution, his visits to the Hospital, and inquiries after the welfare of the patients. The diagrams on aural subjects gifted by him to the Hospital the Directors look upon as a memento of one who, in addition to his distinguished services to the medical profession, brought to

bear on the cause of suffering humanity a large and loving heart."

Situated originally in Buchanan Street, the Institution migrated in 1885 to much larger and more convenient premises at 28 Elmbank Crescent, where it is at present situated. The building is very commodious, consisting of three flats and a kitchen area. In one flat there is the large clinical room, where patients are seen by the medical staff, having three windows, yielding, in suitable states of the weather, good natural light, while eight gas brackets, with argand burners, provide for the examination of patients by artificial light, and give facilities for the practical work of the course of instruction. On the same flat there is also a waiting-room and a room for recording cases. On the second flat there is a spacious lecture-room, and a room for the meetings of the Board of Directors. On a third flat accommodation is provided for in-door patients. A play-room is also provided for the use of children. Besides being commodious, the Institution is excellently equipped with diagrams, models, instruments, &c.

The dispensary department, for admission to which a subscriber's line is not required, is open daily at two o'clock. In this department there were seen during the year ending 29th February last, 846 patients, representing 4,910 consultations. The in-door department is a very important feature of this institution. During the past year there were 57 admissions to this department. In-door patients are admitted on the recommendation of subscribers of £1, 1s. annually. The members of the medical staff have also the power of transferring suitable cases from the out-door to the in-door department. The in-door patients consist of persons who suffer either from the more serious consequences of purulent disease of the ear, or from the more simple forms of deafness, when, owing to the destitute condition of the patients, there is no chance of the treatment being carried out satisfactorily at home.

It may be interesting to mention that about eighteen months ago there occurred, in the in-door department, one of the few cases in which the skull has been successfully perforated in order to reach and drain a cerebral abscess consequent upon ear disease. The patient (a boy) is now alive and well.

The Board of Management is composed of fourteen gentlemen, presided over by Chas. M. King, Esq., of Antermony. The medical staff consists of the aural surgeon and two medical men who act as clinical assistants, while two

medical students are appointed every six months to perform the duties of clinical clerks. There are, in addition, a consulting physician and surgeon, consulting ophthalmic, throat, and dental surgeons, and a pathologist.

Regular courses of lectures and clinical instruction are conducted by the aural surgeon. The importance of this section of the work will be best indicated by pointing out the results of the winter session 1887-88. During that session the course was attended by as many as 75 students. This was the largest class ever conducted in the Hospital. In addition to the regular courses of instruction, students and practitioners frequently attend to see the practice of the institution, and are always welcomed by the members of the medical staff. It is not over the mark to say that during the past year 100 medical students and practitioners came under the influence of the teaching function of this institution.

It only remains to be added that the financial condition of the Hospital is satisfactory. The income last year (including subscriptions, donations from patients, and legacies) was £425, 18s. 8d., while the expenditure amounted to only £343, 18s. 6d.

THOMAS BARR, M.D.

THE GLASGOW LOCK HOSPITAL.

41 ROTTENROW.

THE Lock Hospital was formed in 1805 for the treatment of unfortunate females, and was incorporated by "Seal of Cause" from the Magistrates and Town Council in 1807. It was started with 11 beds in a house in Rottenrow farther west than where it is now situated, and the number of beds was increased to 20 in 1810. A new site was acquired, and the present building opened in 1846. This has 7 wards with 45 beds, but there is sufficient room to accommodate 80 beds if required; and all necessary household, surgery, and bath accommodation is provided.

The staff consists of two surgeons, one or other of whom visits two or three times weekly; and a clinical clerk, who is generally a senior student, but sometimes a qualified practitioner, is in attendance daily. Students are admitted for instruction. The superintendent, the matron, and a nurse reside in the house.

Up till 1855 applicants for admission had to procure a

subscriber's line, but since that date no such formality has been required, any one applying at the door being freely admitted. The average number of cases admitted annually for the last five years has been 330, of whom 220 applied for the first time, many of them being very young girls; and the average number of patients nightly in the hospital has been 28. Each patient spends on an average 29 nights in the house, and the average cost per patient is £2, 1s. 7d.

The institution is supported by voluntary contributions, and receives annual grants from the City, the Barony, and the Govan Combination parochial authorities, and occasional fees from special cases are received.

C. F. P.

GLASGOW ROYAL ASYLMUM,
GARTNAVEL.

SCOTLAND is singularly fortunate in the provision it has made for the care and treatment of the insane. The *pauper* insane who require asylum care are all accommodated in rate-provided asylums, where no profit requires to be made out of their maintenance; while of the *private* patients who require asylum care about 90 per cent are accommodated in the Royal Asylums, where no proprietary interests exist, and where the thought of a dividend never hampers the administration. These Royal Asylums of Scotland are seven in number, and are conveniently distributed throughout the country at Aberdeen, Dundee, Montrose, Perth, Edinburgh, Glasgow, and Dumfries. They are all public institutions in the sense that they are the property of the public, by whom their directors are appointed, and that they exist for the public benefit, no individual deriving any direct profit from their revenues; but they are private institutions in respect of the privacy the patients enjoy, and in respect that they derive no support whatever from Government or from public funds, but depend entirely on the boards paid for patients. At their foundation and in their early history they of course depended largely on private benevolence, but this source of income is no longer required, as they are now self-supporting. They correspond somewhat to the Lunatic Hospitals of England, but they seem to do more for the lower middle class, and to aim rather at being useful to the masses than at becoming luxurious homes for the few.

The Glasgow Royal Asylum may be taken as a type of these Scotch institutions, and its history resembles more or less that of the others. The records show that this institution owes its origin to the philanthropic exertions of one gentleman—Robert M'Nair, Esq. of Belvidere, Glasgow,—who was latterly for many years collector of H.M. Customs at Leith. While acting as a director of the Town's Poorhouse, the heart of this good man was touched by the wretched condition of the insane folk, who at the beginning of the century, whatever their social position, were kept in “the cells” at the Poorhouse on the banks of the Clyde; and as improvement of the cells was impossible, he determined to procure for them better care and treatment elsewhere. After years of personal solicitation he collected £7,000. The foundation-stone of a “Glasgow Asylum for Lunatics” was laid in 1810, and in 1814, ten years after Mr. M'Nair began his benevolent labours, the institution was formally opened by the Lord Provost and Magistrates of the city. The directors consisted, and consist still, of 14 representatives from various public bodies in the city, 8 from the general subscribers, and the physician superintendent of the Asylum. They were formally incorporated by the city authorities, and their incorporation, thus constituted, was, ten years later, confirmed and established by Royal Charter under the title of “The Glasgow Royal Asylum for Lunatics.” The institution thus established was for many years regarded as a model asylum, and enjoyed the highest reputation. In course of time it became quite unequal, notwithstanding repeated enlargements, to the demands made upon its accommodation, and the extension of the city around it interfered with the privacy and amenity of the institution.

In 1841 the need for more and better accommodation had become urgent, a new site three miles from the centre of the city was selected, the original buildings were disposed of to the directors of the Town's Hospital, and the present Royal Asylum at Gartnavel, in the western suburbs of Glasgow, was opened in 1843. The institution is built in the Tudor Gothic style, and stands in a lofty position in the centre of its pleasure grounds, which, with gardens, extend to 66 acres. It consists of two separate houses, for the higher and the lower class of patients respectively, with all the needful administrative buildings. The plans were prepared by Mr. Charles Wilson, architect, under the direction of Dr. Hutcheson, then physician superintendent, with whom

the architect had visited, by desire of the directors, all the best institutions of the kind in England and France. The construction is more institutional and concentrated than would be adopted now, but it was greatly in advance of the time when it was erected nearly fifty years ago, and even now will bear comparison with many more modern asylums. It accommodates 500 patients, at boards varying from the pauper rate to £400 a year or upwards, according to the accommodation, care, and service required.

The history of an asylum for the insane which dates from 1814 must have many points of interest, and in its oldest records it is striking and instructive to find all the best treatment of to-day foreshadowed and approved.

In its earliest Rules, dated 1814, "the keepers," as they were then called, are absolutely forbidden "to strike or strive with a patient," or "to subject a patient to confinement, privation, or punishment of any kind, without express instructions from the physician or superintendent." To deceive, or terrify, or irritate a patient in any way is equally prohibited. Further, "No keeper shall indulge or express vindictive feelings; but, considering the patients as utterly unable to restrain themselves, the keepers must forgive all petulance and sarcasms, and treat with equal tenderness those who give the most and those who give the least trouble." A weather register is to be carefully kept by the superintendent "to determine how far the weather does or does not influence maniacal paroxysms." Case books shall be regularly kept by the physician recording the treatment and progress of each case. "All will be encouraged to employ themselves in useful occupations, in innocent amusements, and, above all, in taking regular exercise in the galleries, and, whenever the weather permits it, in the open air."

In 1815 the Report laments large expenditure, but justifies it because "it proceeds from the principle of sacrificing everything to the comfort and cure of the patients." "If the system of locking up the patients for hours together, or of putting them in chains whenever the keepers could not attend, were to be adopted, some of the keepers might be spared; but instead of being a dwelling of comparative comfort, the Asylum would then put on the appearance of a jail; patients would become sullen or vindictive; and the chance of recovery would be reduced almost to nothing." "Medicine avails little without such a regimen as may restore the patient to proper habits and soothe his troubled passions."

"Harmless amusements, wholesome exercise, and useful labours" promote contentment and recovery. Two looms have been erected for the patients' use, and spinning, knitting, and sewing are engaged in. One patient is rewarded for his skill and industry in weaving by having part of the money he earns placed in the savings bank in his name. Some patients write poetry, others work at mathematics, and others are public readers, to whom their fellow-patients listen with pleasure. The public are invited to contribute books or magazines for the use of the patients; also "draught boards or back-gammon tables; in short, anything which can serve to occupy the attention, and call off the thoughts from the objects or associations which disturb them." The Regulations of the Asylum are distributed throughout the West of Scotland, that ministers, doctors, and magistrates may be fully informed as to the mode of sending patients; and when patients are discharged, written directions for their care are sent to the relatives. Already the difficulty of finding and retaining good attendants is experienced, and a justly high estimate is expressed of the qualifications required.

In 1816 the Report tells of the pleasure afforded by little concerts at which the patients are the performers, and of letter paper being liberally supplied to all who desire to write, the risk of unwise letters going out being accepted on "the principle of removing from the Asylum, as much as possible, all appearance of a prison." The various occupations of the patients are detailed, and, "every encouragement is given to the exertions of industry, because nothing contributes so much to promote a cure or prevent a relapse." The importance of early treatment is insisted on, and the need for relieving the institution from the accumulation of incurable cases.

In 1817 the Report tells of a patient being allowed to visit her friends in town, to attend church, and to take another patient with her, and of former patients returning voluntarily to the Asylum when they feared a relapse. It speaks of erroneous ideas as to the value of drugs, recommends the prevention of violence by a show of overwhelming force, which makes resistance hopeless, and advises the leaving of food within reach of a patient who is refusing his meals that it may be taken unobserved. A billiard room and a bowling green are added to the list of amusements. The difficulty, which exists to this day, of getting reliable information about patients sent to the Asylum is ground for serious complaint.

In 1819 Divine service, with a sermon as in church, was first observed in the Asylum.

In 1820 the advantage of out-door labour is strongly urged, although patients are also employed in all the various handicrafts. Gardening is recommended as an occupation for gentlemen patients. Cottages, or suites of apartments separate from the ordinary wards, are to be provided for high-class patients, where "they will be permitted to enjoy the greatest possible degree of personal liberty consistent with the necessary treatment."

Thus in the very earliest years of this institution we have the essential principles and an ample earnest of all that is best and most enlightened in the modern treatment of the insane. To Dr. Cleghorn, its then physician, all honour is due for so worthily laying down the great lines on which the Asylum has ever since been conducted. It is a genuine pleasure to recall the Christian sympathy, the enlightened philanthropy, and the practical wisdom of the founders of this institution. Their views were far in advance of the age, and supply a wholesome rebuke to the too prevalent spirit of to-day, which weakly worships novelty and notoriety, and loudly proclaims a discovery when it has only called an old truth by a new name.

At the same time these old records contain curious reminders of ideas and methods long since obsolete. In 1817 one of the officers is specially thanked by the Directors for inventing a leather muff which is better, and much less irksome, than a strait waistcoat, while "it is more seemly than handcuffs of iron, and in cold weather less disagreeable!" and in 1819 we read that "rotatory motion, by means of a whirling chair, has of late been tried in a great number of cases, and in some of them, with wonderfully good effect."

The wise and philanthropic spirit of the founders was well sustained by their followers. Thus, in 1826 Dr. Balmanno, a very able physician, and worthy successor to Dr. Cleghorn, writes:—"The treatment has been conducted as formerly. Due attention has been paid to those two important points—viz., the greatest practicable degree of personal liberty, and the use of proper means of employment. We are inclined to concur in opinion with those who judge that lunacy, like fever, has a certain course to run. And as the malady in most of our patients, when they are admitted, is in the progress of that course, a great part of our treatment consists in the use either of the means of moderating excitation, or of promoting convalescence. The

most useful of these means, especially for the latter purpose, are such amusements or occupations as may engage attention and afford some degree of bodily exercise."

It is needless to follow the history of the institution, or to detail the many changes, improvements, and additions which the years have brought. The spirit in which the institution was begun has always animated the management, and throughout its history the first aim has been the welfare of the insane. Now that the administration is no longer hampered by want of funds, nothing is withheld that can promote recovery, and the benefits of the Institution have been placed within the reach of the less affluent classes by reducing the payments to the lowest practicable rates. Great and unknown charity is constantly exercised by the directors in the reduction of board in necessitous cases.

The financial history of the institution has been chequered, necessary expenditure having outrun the available funds at the erection of both the original and the present buildings. At one time the debt exceeded £45,000, and this amount the directors had to borrow on their personal security. Not until 1879 was this building debt extinguished by the margin of profit which each year contributed, and the institution now possesses a reserve fund of £28,000 available for any extraordinary expenditure, and for pensions.

The present buildings afford suitable accommodation for 500 patients—300 private cases and 200 paupers. This great field is available for clinical instruction, the Physician-Superintendent being the University Lecturer on Insanity.

From the opening of the Asylum in 1814 till the close of 1887, 14,765 insane patients have been received for treatment, and of these 6,476, or 43·8 per cent, have been discharged recovered. The percentage of recoveries on the admissions of last year (1887) was 45·1, while the deaths were 5·5 per cent of the average number resident, and 4·1 per cent of the total number under treatment.

The benevolent exertions of the founders of the Glasgow Royal Asylum have thus borne noble fruit. The institution has been an unspeakable blessing to multitudes, and age has not lessened its efficiency and usefulness.

D. YELLOWLEES.

BARONY PAROCHIAL ASYLM.

WOÓDILEE, LENZIE.

UNDER the Poor Law (Scotland) Act of 1845, the duty of providing for the care and treatment of the lunatics of a parish is laid upon the Parochial Board.

Previous to 1875 the Parochial Board of the Barony Parish of Glasgow, which is the largest and most populous in Scotland, having an estimated population of 289,457, and a gross valuation of £1,574,020, provided for the lunatics of the parish mostly in the wards of the poorhouse at Barnhill, near Springburn. These wards were licensed to accommodate 160 patients, the remainder of the patients chargeable to the parish being boarded in other asylums throughout the country. About the year 1870, owing to the continued increase of lunacy, the want of proper accommodation, and the expense incurred in maintaining the patients in other asylums, the Parochial Board appointed a committee to consider the whole question of lunacy accomminodation, who reported "that the growing wants of the parish should be provided for by the erection of an asylum capable of accomodating 400 patients, and constructed with the view of eventual extension to accommodate 600, that a new asylum must be erected, and on considerations alike of humanity, expediency, and economy, the committee recommend that it be a farm asylum of the nature and extent indicated." The Parochial Board having adopted this report, proceedings were at once taken to carry out the same by the purchase of the estate of Woodilee, comprising 167 acres of land, towards the end of 1871.

Plans were prepared by Messrs. James Salmon & Son, architects, Glasgow, under the superintendence of the General Board of Lunacy and the Asyluni Committee of the Parochial Board, and the building was thereafter erected with all despatch.

The main building is in the Elizabethan style of architecture, and is 700 feet long, with a corridor running its entire length. In the centre of the administrative block is situated the kitchen, where the food is cooked by steam. The dining hall and recreation hall are each 89 ft. by 44 ft. 6 in., on each side of the former being conservatory corridors entering into the chapel, where worship is conducted daily in presence of about 390 patients. In the two main towers large tanks have been fitted up for the supply of water throughout the building. Every freedom is allowed to the patients both inside and out,

the men being chiefly employed, as already indicated, on the land and farm, and the women in usual household duties.

The Asylum, which is acknowledged to be one of the finest and most fully equipped asylums in the country, has been visited by specialists and others from all parts of Scotland and England, as well as from the Continent and America, all of whom have expressed their admiration of the arrangements there provided for the treatment of the insane. It is situated about eight miles from Glasgow, and is about one mile distant from Lenzie Station. It occupies a conspicuous position, bordering the main line between Glasgow and Edinburgh on the North British Railway.

Recognising the liberal manner in which the Parochial Board had by its erection provided for all the lunatics of the parish, the General Board of Lunacy in 1881 granted the ratepayers thereof total exemption from assessments for lunacy purposes levied by the District Board while under the powers conferred by the Lunacy Districts (Scotland) Act, 1887, the General Board has created the Barony Parish into a separate Lunacy District, with Woodilee as its District Asylum. Its present staff consists of upwards of 70 male and female attendants, tradesmen, and other officers, under a medical superintendent and assistant.

It was opened upon the 22nd October, 1875, under the superintendence of Dr. Rutherford, now medical superintendent of Crichton Royal Institution, Dumfries. Since then the Parochial Board has acquired the adjoining estate of Wester Muckcroft, consisting of 148 acres, upon which there is a house and farm, where patients engaged in farm work are accommodated. In addition, 64 acres have been acquired and 80 acres are held on lease. In 1879 it was resolved to erect a thoroughly equipped farm succursa, which has since been occupied by patients who work upon the farm. The total land in connection with the asylum amounts to 459 acres, the greater portion of it being under cultivation; so that there is ample scope for the employment of patients in out-door work. The total cost to date of the land, buildings, farm, drainage of land, &c., railway siding, furnishings, &c., amounts to £201,202, 13s. 11d.

The license by the General Board of Lunacy has been extended from time to time, the whole buildings being presently licensed to accommodate 600 patients—320 males and 280 females. On 14th May last, the close of the financial year, the numbers resident were 283 males and 269 females, total 552, in addition to which there were boarded by the parish with private families, in various parts of the country,

upwards of 100 patients, for whom curative treatment in the asylum was no longer necessary or advantageous. The asylum is managed by a special committee appointed by the Board, under rules framed by the General Board of Lunacy and the Home Secretary, and is visited twice a year by the Commissioners in Lunacy, whose reports are published in the annual report of the General Board of Lunacy.

A special feature of the asylum is its system of sewage irrigation, which was commenced in 1879, and now extends to about 80 acres of land, with gradual periodical extension. The sewage is conveyed in iron pipes distributed throughout the fields, from which it is run off by hydrants placed at convenient places. The pasturage derives thereby immense benefit, more especially in dry seasons, and no deleterious effect upon the sanitary condition of the institution has ever been observed.

CITY PAROCHIAL ASYLUM.

THIS Asylum is associated with the Town's Hospital in Parliamentary Road, and is under the same general management. A short account of it, in its joint connection, is given in the description of that institution, to which the reader may refer. Only female insane are now received, and the number for which it is licensed has been reduced to 125. The male patients were removed about five years ago, owing to the increasing admissions of the ordinary poor, and the section of the establishment thus set free was added to the poorhouse. Previously, for many years, the asylum was licensed for 248 lunatics, and was always full or nearly so.

It is one of a small group of establishments which are peculiar to Scotland. They are under the immediate management of the boards of individual parishes, and receive for treatment and care the acute as well as the chronic forms of insanity. There are only six of them altogether, and one of them, the Barony Asylum at Woodilce, Lenzie, the largest and most important of the group, by an Act of Parliament which has just come into operation, has been taken out of the category, and will, in future, we understand, be included among district asylums. The City parish will, ere long, be on a similar footing; for by virtue of the same Act, its board are empowered to erect an asylum for all the insane poor of the parish; and they have determined to do so without delay. It will be situated some miles out of town, and when ready to receive patients, those in the present building will be transferred to it, the poorhouse being thus further enlarged. This, however,

can scarcely be carried out within a shorter period than three years.

To prevent misapprehension regarding the provision for the insane poor in Scotland, it may be well to state that the majority are accommodated in the Royal and District Asylums. A portion of the chronic and harmless insane occupy special wards in ordinary poorhouses, corresponding to those in other parts of the kingdom; a considerable body reside with their relatives, while a large and steadily increasing number are boarded in specially licensed private houses, but not more than four under one guardian. This last arrangement is known as the Scottish boarding-out system, and does not exist in any other country.

ALEX. ROBERTSON, M.D.

GOVAN PAROCHIAL ASYLUM.

PREVIOUS to the year 1857 the Govan Parochial Board found accommodation for their pauper lunatics in Glasgow Royal Asylum, Gartnavel, and in Kirklands Asylum—then a private, now the District Asylum for the Glasgow Lunacy District. In that year, however, in consequence of the increasing difficulty of providing for the lunatics of the parish, the Board made extensive improvements and alterations in the then poorhouse in Eglinton Street, Glasgow, to meet the views of the General Board of Lunacy, and obtained from them a licence for lunatic wards for the care of certain chronic and harmless patients. They were still dependent on Gartnavel and other asylums for the care and treatment of acute and dangerous cases. It was not until 1873, when the poorhouse was removed to its present site at Merryflatts, that—owing to the very inadequate provision for pauper lunatics within the Glasgow Lunacy District—the General Board granted authority for the reception of acute and dangerous as well as harmless and incurable patients.

The Asylum, although still technically the lunatic wards of Govan Poorhouse, was from that time fundamentally changed in character. It was equipped as a hospital for the treatment of the insane, with a sufficient staff of attendants, in-door and out-door amusements, and nearly 30 acres of land for the healthy and profitable employment of the patients. Practically, since 1873 it has been doing the work of a district asylum for the parish of Govan, and, considering the exceptional difficulties, doing this work well.

During the decade 1871-1881 the population of the parish

rose from 161,000 to 238,000, and this year the estimate is 260,000. With this there has been, of course, a corresponding increase of insanity. To endeavour to meet this rapidly growing necessity, the Asylum, which was originally designed for 180 inmates, was enlarged to 244, its present limit; and it is still much too small for the wants of the parish.

During the fifteen years previous to 31st December last a total of 2,223 cases was admitted, and notwithstanding the unfavourable influence of overcrowding, an average recovery rate of 39·6 per cent on admissions was obtained.

The Parochial Board have for some time felt the pressing necessity of further provision for the pauper lunacy of the parish, but owing to various reasons it has been delayed. The parish is now in a transition state. The recent Act, which empowers the General Board of Lunacy to divide existing districts as they may see fit, has led to the erection of Govan into a separate lunacy district, with power to assess. In no long time we may hope for a large increase of our means of dealing with the insane of the district; above all, ample land for work and recreation, improved buildings, and other aids to carrying out still more fully the modern views of treatment.

W. R. WATSON.

GLASGOW DISTRICT ASYLUM.

BOTHWELL.

THIS Asylum, built of red sandstone in the Scotch baronial style of architecture, and flanked by two handsome towers, is situated at Bothwell, seven miles south-east of Glasgow.

Built originally for use as a private asylum, and opened under the management of the late Dr. Dean Fairlees on 29th June, 1871, it passed into the hands of the Glasgow District Board of Lunacy in 1879, and, after enlargement and re-modelling, was opened with 200 beds on 21st April, 1881. Its future is uncertain, and its history must continue to be chequered, for the Glasgow District Board of Lunacy will, as the result of a special statute passed by parliament last session, cease to exist very shortly, to be replaced by four Divisional Boards. This Asylum, commonly known as Kirlands Asylum, has only seven acres of land, which is bounded on all sides by hedges and public roads, which give an aspect of freedom to it.

A. CAMPBELL CLARK, M.D.,
Medical Superintendent.

A CASE OF CONGENITAL DISEASE OF THE HEART.

By GEORGE S. MIDDLETON, M.D.

(Case shown at the Medico-Chirurgical Society, 4th May, 1888).

CASES of congenital disease of the heart, though not absolutely rare, are so comparatively infrequent, that I have thought it worth while to bring the following instance before the notice of the Society. As illustrating the infrequency of the condition, I may mention that this is only the second case that has come under my observation at the Royal Infirmary Dispensary during a period of six years. The other case was shown at the Pathological and Clinical Society, a note of it being published in the *Glasgow Medical Journal*, December, 1882.

Margaret R., then about ten and a half years of age, was brought to the Dispensary in December, 1885, suffering from incontinence of urine, for which alone treatment was desired. Her mother incidentally remarked, however, that she had a "beating in the chest," and examination revealed the following facts. An exceedingly well marked purring tremor was felt widely distributed over the praecordial area, with its centre of greatest intensity over the pulmonic area or the right ventricle. A very loud ventricular-systolic murmur, of a rough character, and audible a few inches from the chest wall, was heard all over the front of the chest—with greatest intensity and roughness about the pulmonic cartilage. The second sound was noted to be comparatively feeble, or dwarfed by the loudness of this murmur. It was also noted that the cardiac dulness was not enlarged. There was no enlargement of the veins; no cyanosis; nothing abnormal in the condition of the lungs; and no clubbing of the finger ends.

Up to the age of six years she was a perfectly healthy child; at that age she had a slight attack of whooping-cough, from which she recovered perfectly. She never had rheumatism, scarlet fever, or chorea. She remained well up to the age of eight, when she began to complain of shortness of breath, and the tremor in the praecordial area was then first observed by her mother. She never suffered much from cough. Haemoptysis, cyanosis, pain, and oedema had never been present. Cardiac symptoms had been so slightly marked, if present, that she was always able to take a share in the games of the other children, and it was only when she reached the age of eight years that it was supposed that there was anything the

matter with her.* No other member of the family is similarly affected. Her mother suffered in no way during gestation, and the girl was born at the full period.

During the past two years she has been frequently seen, and brief notes occasionally made as to her condition, of which only two need be mentioned—viz., (1) that in November, 1886, she stated that she could join her schoolmates in many games, but always had to desist from any game in which there was much running; and (2) that in October, 1887, enlargement of the heart towards the base was observed, with slight relative feebleness of the left pulse, and perhaps slight difference in the size of the pupils, the right being smaller than the left.

She has maintained good general health, and has always been able to attend school, the only thing for which she has consulted me being a small, scrofulous-looking sore under the chin. It may here be mentioned that in the neck, under the right ear, there is the cicatrix of a scrofulous gland which suppurred several years ago, and in the anterior triangle of the neck on the right a few small, hard, painless glands are felt. She has never shown any marked lividity, but, since her mother's attention has been directed more closely to her, it has been noted that she suffers somewhat from coldness of the extremities, which become of a bluish colour. She has never had any paroxysms of dyspnoea; shortness of breath occurs only on exertion. There is no orthopnoea, but the mother states that she "likes a high pillow."

For her age (12 years and 9 months) she is a fairly well developed girl, her height (in her shoes) being 54 inches, and her weight (in her clothes) $69\frac{1}{4}$ lbs., the means in girls of her age being, according to Dr. Bowditch, 56 inches and 76 lbs. There is a very slight tendency to clubbing of the finger ends with curvature of the nails. At school she has not distinguished herself, but she is of quite average intelligence and capacity.

The chest is well formed, but the lower half of the sternum perhaps protrudes a little unduly. There is no great amount of undue impulse visible in the praecordial region. Occasion-

* *4th May.*—To-day I learned for the first time that this patient had been under Dr. McCall Anderson's care in the Western Infirmary from 29th February till 26th May, 1884. She was not admitted on account of any urgent symptoms, the record in the Ward Journal stating that she looked a healthy girl, though she had for a year complained of shortness of breath and praecordial pain on exertion. The tremor and murmur were much the same then as now, and it was noted that "the heart is not notably enlarged to the left, and there is just a suspicion of enlargement to the right."

ally retraction is observed in the second and third left intercostal spaces. The veins of the neck are slightly too prominent, and pulsate visibly. The superficial veins on the front of the thorax are not unduly distinct. There is very little visible, and practically no tangible impulse in the epigastrium, when in the recumbent posture.

On placing the hand over the praecordial region purring tremor is very evident, with its centre of greatest intensity in the second left intercostal space, not far from the sternal margin. It is conveyed best up towards the left clavicle, but is very marked all over what may be presumed to be the area of the right ventricle—viz., along both margins of the sternum down as far as the fifth costal cartilage, and even as high as below the inner half of the right clavicle. In the episternal notch undue pulsation and thrill are felt, but in the vessels of the neck just above the clavicles there is very little thrill. The tremor is barely appreciable at the seat of the apex impulse.

There is no punctuate apex beat. Impulse is felt widely diffused over the fifth and sixth intercostal spaces, extending about an inch and a-half to the left of the nipple line, but not strong. In the fourth intercostal space impulse is also felt, but it is obscured by the tremor above described.

The cardiac dulness is now greatly enlarged. At the level of the fifth intercostal space, to a light percussion stroke, the left margin passes nearly an inch and a-half to the left of the nipple line, while the right margin extends two inches to the right of the middle line, giving a transverse breadth of $6\frac{1}{2}$ inches. The upper border of the dulness reaches on the manubrium to within half an inch of the episternal notch. The right margin keeps well to the right of the sternum till it joins the upper margin.

Over the whole of the front of the chest a ventricular-systolic murmur is heard. It is very loud and rough all over the area above described as the seat of greatest intensity of the tremor. It attains its maximum of loudness and roughness in the second left intercostal space near the sternum, where also it is extremely superficial, and may be heard at a distance of a few inches from the chest wall. It is well conveyed towards both clavicles, but especially towards the middle of the left clavicle, where it is much louder than immediately above the left nipple. At the apex of the left ventricle the murmur has lost greatly both in intensity and in roughness. It is not well heard in the vessels of the neck. It is so loud and prolonged as greatly to mask the second

sound, which seems to be equally feeble over the aortic and the pulmonic cartilages.

There is slight dulness at the bases of both lungs behind, with defective respiratory murmur and a few sonorous râles. Otherwise the lungs appear to be healthy.

Both pulses are small and feeble, the left being still rather more feeble than the right, and the right pupil is still observed to be perhaps rather smaller than the left. There is no undue prominence of the eyeballs.

The hepatic dulness is apparently slightly increased, the upper margin in the line of the nipple crossing the fifth intercostal space and the lower margin reaching slightly below the margin of the costal arch.

Although there is, in this case, no history of any indications of cardiac disease before the age of eight years, and even since that age but few of the more marked symptoms generally associated with congenital disease of the heart have been present, I have from the first looked upon it as a case of that nature, the physical signs pointing clearly to such a diagnosis. It is quite probable that trifling symptoms may have been overlooked during the earlier years of her life, attention being attracted only when the symptoms became more decided. Allowing also for the fact that her mother has watched her more carefully since informed of the nature of the case, I feel satisfied that there has been an increase of the breathlessness on exertion and of the tendency to coldness of the extremities since she came under my charge, and that there has been a progressive enlargement of the heart. It may be that my original note, bearing that there was no enlargement of the cardiac dulness, was inaccurate, but there is no doubt that there has been a marked change in the cardiac dulness. Another indication of retrograde change is the development of a tendency to clubbing of the finger ends.

The absence of well marked cyanosis does not invalidate the diagnosis, as numerous cases are on record of congenital malformation, or disease of the heart, without cyanosis.

The exact pathological condition present here cannot be stated with certainty. With regard to this point, Dr. Peacock* says that—"In those patients who survived the age of twelve, the entrance of blood into the pulmonary artery was interfered with in 38 out of 45 cases. So that in any given case of malformation, especially after the age of fifteen, the probability is that the pulmonary artery is contracted." The intensity of the murmur over the site of the pulmonic valve

* *On Malformations of the Human Heart*, Second edition, p. 193.

seems to indicate that in this case there is stenosis of the pulmonary artery. "If the evidence of obstruction at the pulmonic orifice be tolerably conclusive, we may safely infer there is either a deficiency in the septum of the ventricles or a patent foramen ovale; for one or other of those defects almost invariably co-exists with that condition."* It may, therefore, be presumed that one or other of these conditions is present here. The altered quality of the murmur as heard at the apex, suggests also the possibility that mitral regurgitation may be a secondary factor in this case.

PHENACETINE AS AN ANTIPYRETIC.

By JOHN H. CARSLAW, M.B.,
Resident Assistant, Western Infirmary.

DURING the month of April, while resident physician in Dr. Gairdner's wards, I had the opportunity of testing the usefulness of phenacetine as an antipyretic. As the drug had been only quite recently introduced, and any observations upon its action seemed to be not altogether without value, careful notes were kept of the cases in which it was tried. The substance of these notes is contained in the following short paper, published with consent of Dr. Gairdner and of Dr. Middleton, through whose kindness the sample of phenacetine was obtained.

In a pamphlet "on the new antipyretic 'Phenacetine,'" published a short time ago by Dr. G. Kobler, of Vienna, he thus summarises his experience of its use:—

- "1. Phenacetine is a very effectual antipyretic.
- "2. It has no disagreeable or deleterious effects, such as cyanosis or collapse.
- "3. It produces strong euphoria.
- "4. It is best administered in single doses of 8 to 12 grains, instead of smaller ones given hourly or bi-hourly.
- "5. The reduction of temperature after such a dose is from 2 to 2½ degrees centigrade."

It may be mentioned further (from his descriptions) that the drug is an inodorous and tasteless powder, and causes neither nausea nor vomiting. The maximum decrease of temperature he found to be produced in 4 or 6 hours; and "after 8 or 10 no further influence" was exerted. It "acts more decidedly when given late in the afternoon or evening."

* Peacock, *l. c.*, p. 194.

The cases in which one trial was made were 11 in number, and of these 5 were cases of phthisis, 1 of necrosis of the lung, 1 of "septicæmia," 1 of perimetritic abscess, 1 of acute pleurisy, 1 of malignant disease of the liver, and 1 of exophthalmic goitre. The dose in general used was 5 grains, but 7½ and 10 grains were given in exceptional circumstances. The degree of fever at the time of use varied from little over 100° to 105° F.

Though the antipyretic action did not invariably follow administration of the drug, still it did so in the very great majority of instances of its use, and it did so so punctually that the causal connection between its administration and the fall of temperature could hardly be doubted. Still, as the dose often fell to be given late in the evening, in cases where the temperature was *accustomed* to fall during night, the fall in such cases could not be said to be more than most markedly accelerated. This was, naturally, most noticed in the cases of phthisis; and it is just in such cases that the advantage of "antipyretic" treatment is most questionable, the depression usually produced by the means employed more than counterbalancing any benefit gained by the reduction of fever. It is, therefore, instructive to note that out of the five cases of tubercular pulmonary disease *three* were very distinctly collapsed by a single dose of 5 grains, and could not, therefore, be said to have obtained any benefit, two of them requiring administration of stimulant, and one suffering besides from sickness and vomiting.

The details of this latter case are these:—

Patient was a girl of 21, suffering from phthisis pulmonalis, with excavation, and with rise of temperature in the evening, usually to about 102°. She had 5 grains of phenacetine twice, and on the first occasion (5th April) it seemed to agree with her well. Her temperature about 7 P.M. had been taken as 101·6°, and soon after 8 she had a dose of 5 grains. At 9 P.M. her temperature was 101·6°, and she felt very hot but was not perspiring. At 11·30 she was perspiring freely, and at 12 midnight the temperature was 98·6°, rising, however, to 101·8° by next forenoon. At 10·30 P.M., on the 6th, the temperature was 99·8°, and so no antipyretic was given, but this is the only note below 100° on the 6th or 7th, and on the morning of the 8th 102·8° is entered. Between 7 and 8 P.M. (on the 8th) we had 102·2°, and at 8·30 she had 5 grains phenacetine. At 11 P.M. the temperature had fallen to 96·4°, and she felt very cold and shivering. A hot bottle to her feet became necessary, as well as some brandy in warm water. Still she

continued shivering till 3 A.M. She vomited a little and felt sick all night. Several times during the early morning the mercury would not rise. At 7:30 it registered 103.3°.

Somewhat similar is the case of H. F., æt. 30, a man suffering from tubercular disease of bladder, lungs, &c. His evening temperature was, as a rule, between 101° and 102°; but at 7 P.M. on 5th April had been 102.4°. At 11:30 it was 102.6°, and 5 grains phenacetine were administered; thereafter patient felt very hot. At 12:30 his temperature was 101.8°, and soon after this his pulse was noticed to have become weak, and stimulant had to be given. He perspired most profusely. At 2 A.M. temperature was 97.6°, and he felt cold; but at 4, with temperature of 97.4°, he felt better than usual; at 6 A.M. the mercury would not rise; at 9 A.M. it registered 99°; and at 12 noon 100.4°.

In a fourth tubercular case (of acute phthisis in a male, æt. 39, going on very rapidly indeed to fatal issue), a rigor followed within four hours of patient's getting the second of two doses of 10 grains, given with eight hours' interval. Previous doses of 5 gr. or of 10 gr. had always seemed to him beneficial, in spite of the most profuse perspiration which was induced. No weakness of pulse or vomiting had occurred in this case. Immediately after the phenacetine was given he felt hot, but shortly the perspiration began; and when the temperature had fallen, as it did in from three to six hours, he felt cool and comfortable. When the dose was given late in the evening, he slept well after it. It was on the 11th April that the rigor occurred, and then, for the first time, the pulse was noticed to be weak. Phenacetine was not again given, and the temperature continued high till death (on 22nd April) in spite of use of quinine and antipyrine. Rigors occurred subsequently to the 11th—once within a few hours of a dose of 15 gr. antipyrine, once apart altogether from use of remedies, so that the connection in time between this first rigor and the giving of phenacetine may have been accidental.

The fifth case of phthisis always seemed benefited, and expressed herself as such. The dose was given at bed-time, and, though it was followed by profuse sweating, patient felt well, and had absolutely no bad symptoms—no weakening of pulse, no sickness—in any way connected with the use of the drug.

Dr. Kobler speaks of "the diminution of the fever heat" as "usually unattended by perspiration, only in four (out of eleven) phthisis cases, and in typhus recidivus acceler-

ated perspiration was noticed; in these patients, however, he says, a pronounced disposition to sweating existed, and in the administration of phenacetine to such individuals I would recommend discretion and caution." Not only in phthisis, but in nearly every one of our cases, it was found to be the almost invariable rule for perspiration in considerable amount to accompany the defervescence; in the phthisis cases, it is true, it was most marked. It may be observed here, too, that in our cases the reduction of fever was in general found to be even more rapid than Dr. Kobler has represented.

In the case of pleurisy the action of phenacetine seemed to be not unbeneficial, and was quite satisfactory so far as the patient's sensations went; only once did he complain of "feeling cold" after his dose, but there was no rigor, and the temperature then (in the axilla) was not below 98.4°. The antipyretic action was not invariably got, but (almost without exception) prompt reduction did take place, a fall of 3 degrees, from about 101.5° or 102°, occurring within three hours. The dose was usually given at night, and patient perspired after it, but then felt cool and comfortable and slept well.

In the case of "septicaemia" phenacetine was ineffectual in producing more than a very partial reduction, but antipyrine, antifebrin, and quinine also failed, the temperature rising before death to 107°.

The results in the remaining cases were so far satisfactory.

It is impossible to specify exactly the duration of the antipyretic influence, but it may in general terms be stated that the temperature had usually in twelve hours regained its original height.

So far as these few observations go, it may be concluded that, though phenacetine has antipyretic properties, it is not without uncertainties, and it is by no means free from harmful influences; and, further, that, comparing it with other antipyretic remedies, such as quinine, salicylate of soda, antipyrine, and antifebrin, already familiar in hospital practice, it is not at all entitled to the pre-eminent position which its introducer would assign to it.

CURRENT TOPICS.

THE NEW LARYNGOLOGICAL SOCIETY.—The proposal to establish a Society for the study of diseases of the throat and nose has been received with favour by members of the profession specially interested in these subjects. A preliminary meeting was held on April 27th, at the rooms of the Medical Society, London, under the presidency of Dr. M'Neil Whistler, to whose initiative, seconded by the indefatigable efforts of Dr. R. A. Hayes, of Dublin, the Society owes its existence. The following gentlemen, among others, were present:—Drs. Whipham, Woakes, Prosser James, Dundas Grant, Gordon Holmes, J. W. Bond, Coleman Jewell, and Matheson; and Messrs. Lennox Browne, G. H. Bailey, W. R. H. Stewart, G. Stoker, and Arnold Woakes, of London; Mr Cresswell Baker, of Brighton; Dr. Hunter Mackenzie, of Edinburgh; Dr. Macintyre, of Glasgow; and Dr. R. A. Hayes, acting honorary secretary. It was stated that there had already been fifty-one applications for original membership, the list including the names of nearly all the prominent laryngologists in Great Britain and Ireland. It was unanimously resolved that a "British Laryngological and Rhinological Association" should be established, and the first general meeting for the election of officers was fixed for Friday, 29th June. The acting secretary, Dr. R. A. Hayes, 56 Merrion Square South, Dublin, will be happy to give every information relative to the Association to any gentleman interested in it.

GLASGOW HOSPITAL FOR SICK CHILDREN.—We understand that the directors have made the following appointments to the dispensary or out-patient department, viz.:—*Extra honorary surgeons*—Mr. A. Ernest Maylard, Mr. T. Kennedy Dalziel, Mr. Quintin M'Lennan. *Extra honorary physicians*—Dr. Robert S. Thomson, Dr. J. Lindsay Steven, Dr. Charles Workman.

MR. W. D. WOODBURN, son of Dr. Cowan Woodburn, has been appointed dentist to the Western Infirmary.

DR. MACINTYRE, of the Glasgow Royal Infirmary, is engaged in the completion of a series of dissections of the elevator muscles of the epiglottis. He described four hyo-epiglottidean muscles in a specimen of the larynx of man two years ago, and these, with a number of dissections in the mammalia, will be shown at the meeting of the British Medical Association in August next.

CELEBRATION IN HONOUR OF PROFESSOR DONders.—Monday, the 28th day of May of this year, will long be remembered in the quiet and quaint little Dutch town of Utrecht, for on that day was held a celebration in honour of Professor F. C. Donders. This distinguished physiologist has attained the threescore years and ten, and although hearty and strong in body, and keen as ever in intellect, yet by the law of the country at this age he is compelled to resign his professorship. The celebration was held in a large concert hall, and amongst those present to do honour to the occasion we noticed Moleschott from Rome, Zehender of Rostock, Sir Joseph Lister, Jonathan Hutchinson, Brailey, and Hughlings Jackson from London, Landolt from Paris, and Doijer from Leyden. The addresses which were presented to Professor Donders were very numerous, and the presentation of them took a very long time. Moleschott brought with him not only an address, but also the decoration of the honour of Italy sent specially by the king. Sir Joseph Lister was there as a delegate from the Royal Society, and in a few well chosen words conveyed the congratulations of that Society to Professor Donders. In replying to Sir Joseph, Professor Donders said that he regarded the presence of a delegate from the Royal Society as the highest honour that he could receive, and that when the delegate appointed was Sir Joseph Lister he felt the compliment most profoundly.

Amongst the other addresses there were one from Liege and one from each of the Dutch Universities. The students of Utrecht were not behind hand, for one of their number was on the platform ready with their address. One of the most touching incidents of the day was the public and generous acknowledgment Professor Donders made of Kag-anaar, who for many years has been his laboratory assistant, and who has constructed many of the instruments which have been used in his researches.

A large sum of money, about 33,000 florins, had been collected from Professor Donders' many friends and from

physiologists and ophthalmologists throughout the world. Amongst the subscribers was the Queen of the Netherlands. It was left to the Professor to apportion this sum in whatever way he thought best. At the meeting Professor Donders intimated his wish that it should be applied to found a travelling fellowship in physiology and another in ophthalmology ; said fellowships to be awarded every eight years.

After the celebration there followed a public dinner, at which a very large number of gentlemen were present.

In the evening there was a meeting at the Students' Club, to which the students invited several of the foreign guests. One of the members, speaking in good English, proposed the health of the Englishmen present, and said that the translation of Donders' book into English had largely contributed to make Donders' name celebrated. After the toast had been duly honoured in Bavarian, or in whatever other "vanity" was more agreeable, the whole company of students sang most lustily "God Save the Queen." Let us remark, in passing, that there is an entire want of rowdyism about the Dutch student. During the celebration there were no peas or pease meal, and the furniture of the concert room was not in the least damaged. The students were present in large numbers, but there were no inane and meaningless interruptions. No ; the students listened quietly and appreciatively to the various speeches made. Might not some gentlemen nearer home take a lesson ?

In commemoration of the event a book has been prepared by Professor Donders' old pupils and assistants. Amongst the contributors we notice the names of Einthoven of Leyden, Landolt, Snellen, Engelmann, Stokvis, Nüel, and Straub.

The venerable Professor's wife and two children are all dead ; but he enjoys the constant society of his son-in-law, the learned and courteous Professor Engelmann, and the companionship of hosts of friends and old colleagues.

No one can be brought into contact with Professor Donders without feeling his power and magnanimity. Surely we may well wish such a man in his retirement happiness, peace and rest, and all that in the evening of life can fill up the cup of contentment and repose.

MEETINGS OF SOCIETIES.

MEDICO-CHIRURGICAL SOCIETY OF GLASGOW.

SESSION 1887-88.

MEETING XXV.—4TH MAY, 1888.

MEDICAL SECTION.

PROF. M'CALL ANDERSON, *President, in the Chair.*

I.—CASE OF INFANTILE PARALYSIS.

By DR. GAIRDNER.

AN infant was shown, the subject of some kind of infantile paralysis, probably congenital, or arising from an accident during delivery, affecting the upper extremities, and connected with atrophy of muscle, yet differing in some respects from ordinary cases of anterior polio-myelitis. Dr. Gairdner called particular attention to the attitude of the arms as very remarkable, so much so that he could not analyse it to his satisfaction at all. He had not been able to give it much attention, because the child was brought to him one morning when he was otherwise engaged, and he had only been able to arrange hurriedly for its being brought from Perth (the residence of the parents) to the meeting of the Society to-night.

II.—CASE OF CONGENITAL DISEASE OF THE HEART.

By DR. MIDDLETON. (See page 60.)

A patient was shown with congenital cardiac disease.

Dr. M'Call Anderson, in the absence of his notes, as he did not understand till he came to the meeting that this case had been under his charge, could only say that, as far as he remembered, he agreed with Dr. Middleton's description.

Dr. W. G. Dun saw this patient once four years ago, while acting at the Medical Mission for Dr. Laidlaw. She was at that time complaining of symptoms of a cardiac character. He recognised the case as one of a peculiar nature, and advised her admission to the Western Infirmary, under Dr. M'Call Anderson's care. Their diagnosis there agreed with Dr. Middleton's: stenosis of the pulmonary artery, probably congenital. At that time she complained of palpitation and

shortness of breath, so that there was evidence of obstruction somewhere in the circulation. There was also, he thought, distinct enlargement of the heart. There was nothing in her appearance to indicate that she was suffering from any cardiac disease. She was admitted to the Infirmary partly to give her rest, and she left in much the same condition as she entered. Such cases are very unusual. He had only seen one other, under the care of Dr. Finlayson.

Dr. Gairdner said he had seen at least three cases more or less resembling this one, all of them in private practice. He might have seen others, but the three just referred to occurred to his memory at once on simply putting his ear to the chest in this case. One of them, the first he saw, was mentioned in his book on *Clinical Medicine*, and was more recently included in a list of cases submitted to the Medical Section of the British Medical Association at Brighton, as illustrating the long duration of certain cases of organic cardiac disease. The lesion in this case was recognised during early boyhood, and was described by Dr. Gairdner in 1861. The patient, if he could be so called (as he suffered little or nothing), survived for long after that. He lived to a mature age, dying between fifty and sixty years of age. The second case was one seen soon after Dr. Gairdner came to Glasgow. It had been some years previously brought under the notice of Dr. Macfarlane, his predecessor in the Chair of Medicine, who had discovered the very loud murmur—one very similar in character to the preceding. Dr. Gairdner was asked to see the case, not on account of any change in the phenomena, but partly as a new professor, and partly on account of personal intimacy and friendship. He was the son of a gentleman in very good position, and was a growing lad at the time. Encouraged by the previous case, Dr. Gairdner gave a rather favourable prognosis, though there were a few symptoms which, as compared with the first case, somewhat darkened the outlook. For one thing, he was the subject of slight chorea-like attacks, and also sometimes of slight cyanotic attacks, not at all serious except from the prognostic point of view. The patient, however, justified his prognosis. He is still alive, probably about forty years of age, and is now and then to be seen in the streets of Glasgow, though living at a distance, and apparently enjoying life—e.g., shooting in the autumn, &c.—without any apparent lack of vigour or vitality. Dr. Gairdner not infrequently meets him (though not at all in a professional way), and though he has an intense curiosity to examine his chest, he has not the impudence to ask him. The third case was a

boy he had seen with the late Dr. Scott Orr. He was a boy that could not be kept from cricket, and all those other schoolboy games. He was afterwards sent to Germany, where he was thought to be out of the way of such violent schoolboy sports. At the time this step was advised, a synopsis of the case was drawn up in manuscript, with the view of its being submitted to any distinguished German physician whom it might be considered expedient to consult; but in consequence of Dr. Scott Orr's death he had never known whether German authorities had been consulted or not.

III.—A CASE OF AORTIC VALVULAR DISEASE WITH AN AURICULAR-SYSTOLIC MURMUR.

By DR. GAIRDNER.

The heart was exhibited from a case in which an auricular-systolic murmur was casually heard during life, while the *post-mortem* examination revealed no mitral lesion, but a perforation of one of the segments of the aortic valve.

H. T., *æt. 24*, seaman. The interest of this case, from the practical point of view, is entirely connected with a cerebral lesion which caused comatose symptoms, giving rise to questions of brain surgery fully discussed in a detailed record of the case in the *Glasgow Medical Journal*, October, 1887, p. 242. The cardiac phenomena—which were of quite subordinate importance during life, and which, even after death, could not be said to have in any appreciable degree affected the fatal result—were, for the sake of brevity and simplicity, omitted (with only a brief allusion to them) in that narrative, nor would they have appeared even now to have required a separate statement were it not that during a great number of years in which Dr. Gairdner has been cognisant of the late Dr. Austin Flint's views as to the occasional occurrence of a murmur, practically identical with that of mitral stenosis, in connection with extreme aortic regurgitant disease, no other apparently corroborative instance (ending in a *post-mortem* examination) can be said to have occurred. In this instance the facts, being only noted casually and shortly before death, were not so critically observed and recorded as to carry conviction; but as Dr. Gairdner does not wish to suppress, any more than unduly to insist upon them, he has brought the case before the Society in connection with the preparation in the Museum of the Western Infirmary. A more extended account of the case will be given in the *International Journal of the Medical Sciences*.

Dr. Middleton directed attention to the fact that, in his work on *Sphygmography and Cardiography*, Dr. Keyt offered an explanation of Flint's murmur which deserved consideration. Dr. Keyt insisted that in normal cardiac action the first sound of the heart is heard a notable time after the beginning of ventricular systole, as demonstrated by the simultaneous employment of a cardiograph and a stethoscope. The interval of time is about one-fifteenth of a second, which is long enough for a practised ear to appreciate. Now, when the aortic valves are permanently open, as in the case before the Society, "the blood would begin to flow through them immediately upon the beginning of ventricular contraction; the consequence would be the generation of a murmur, which would begin before and run into the first sound. This murmur, though in reality strictly systolic, would strike the ear as occurring before the beginning of systole, because ante-dating the first sound of the heart."

Dr. Newman said there was an exactly similar specimen in the Royal Infirmary Museum.

Dr. McCall Anderson suggested as a possible explanation that, as this was not an ordinary case of regurgitation, but one of regurgitation through an orifice in the valve segment, the sound might be convected to the apex, and therefore not so well heard at the base, where it originated.

IV.—A CASE OF COMPLEX HEART DISEASE, WITH MITRAL AND TRICUSPID STENOSIS, BUT WITHOUT AURICULAR-SYSTOLIC MURMUR.

By DR. MIDDLETON.

The heart was shown from a case in which only ventricular-systolic and ventricular-diastolic murmurs were heard during life, while the *post-mortem* examination revealed extreme mitral stenosis, as well as aortic and tricuspid lesions.

Mrs. F., aged 40, was admitted into the Western Infirmary on 8th December, 1887, suffering from shortness of breath, pain about the heart, and bronchitis, with a history of several attacks of haemoptysis, oedema, and orthopnoea, during several years past, the whole probably originating in a second attack of rheumatism in 1877, the first attack having occurred twenty-four years before admission. The pain in the breast was severe, and worse at night, preventing sleep, and causing her to lie on her left side for relief. She also complained of numbness and weakness of the left arm and leg of two or three years' duration, and not preceded by any loss of con-

sciousness. The weakness in the left hand was noted in her grasp, and also in difficulty in performing fine movements; in walking the left foot was dragged. In both left limbs there was a degree of atrophy. There was clubbing of the finger tips.

The cardiac apex beat was not punctuate, impulse being felt in both fifth and sixth intercostal spaces, especially in the fifth. The greatest amount of impulse was noted in the epigastrium, in the angle between the middle line and the margin of the left costal arch, where distinct jogging impulse was both seen and felt. Pulsation was also observed in the veins of the neck. The cardiac dulness was much increased to both sides. All over the praecordial area V.S. and V.D. murmurs were heard, the former being the more prolonged and prominent. They were best heard near the ensiform cartilage and over the seat of great pulsation in the epigastrium, but they were audible also both at the apex and at the base, though more at the apex than at the base. The V.S. was conveyed into the vessels of the neck, but not the V.D. Reduplication of the second pulmonic sound was occasionally noted. The cardiac action was irregular. The pulse was small, 75 per minute, and presented none of the characters of the water-hammer pulse.

The liver was normal. Sonorous and moist râles were heard over both lungs. Frequent observations of the urine always detected small quantities of albumen, but never tube-casts.

On 24th January, 1888, it was noted that patient's condition had varied much, and that rheumatic pains had been complained of shortly after admission, apparently coinciding with a rise of temperature, the maximum reached not exceeding $100^{\circ}4$. For the past few days there had been complaint of praecordial pain, occurring at intervals. Physical examination gave the following results:—"The area of praecordial dulness is bounded on the left by a line passing through the nipple and at the 6th and 7th ribs extending one and a half inches outside the nipple line; the upper border corresponds with the 4th rib, at which level it crosses the middle line to the right border of the sternum, where the right border may be held to commence, passing gradually outwards so as to reach a point two and a half inches to the right of the middle line at the sixth costal cartilage. V.S. and V.D. murmurs are still audible, and are, as before, very feeble at the base, the V.D. element being quite inaudible at the aortic cartilage. Towards the lower end of the sternum, on the other hand, the murmurs are relatively loud. They are somewhat variable, so that it has been doubted whether they can be altogether of endocardial

origin, especially in view of their distribution being abnormal, and of a certain roughness which has been heard at times with the second sound at the left border of the lower sternum."

Thereafter, with the exception of a recurrence of pain in the joints of the left arm, patient continued in much the same state till 17th February, when a rise of temperature commenced, reaching in three days to 102°4. Coincidently therewith there was a rise in both pulse and respiration, the former varying from 120 to 128, the latter from 24 to 40. On the 18th and 20th February it was noted that there was pain in many joints, as well as in the stomach and in the right side. She died suddenly on 22nd February, 1888.

The following is an extract from the report of the *post-mortem* examination:—

"There were lax adhesions of the pericardium. The heart weighed 22 ounces, the enlargement being mainly of the left ventricle, though not entirely so. The aortic valve was nearly competent on being tested with water, but its curtains were to a great extent coalesced, so that on opening it up, their semi-lunar shape was entirely lost. The mitral valve was greatly thickened and its orifice contracted, so that it barely admitted the tip of the finger. On the auricular surface of this valve there was a rough surface of a calcareous character, with the appearance as if part had broken off. The endocardium of the auricle, as well as the muscular coat, were greatly thickened, and the cavity was somewhat dilated. The tricuspid valve was considerably thickened, and there was coalescence of the curtains, the orifice admitting only the tips of the fingers.

Considerable oedema of soft membranes of brain. An obstruction of the right Sylvian artery, seated at the bifurcation which is the second division of the artery, but still leaving a narrow passage. Corresponding with the distribution of this artery there were old lesions in the brain, consisting in a cyst and cicatricial shrinking in the deepest part of the corona radiata, or most external part of the internal capsule. The tissue in the neighbourhood is greatly condensed, so that it is tough to cut, and the basal ganglia on this side are considerably shrunken. This applies especially to the optic thalamus. It is noticed, however, that the grey matter of the thalamus opticus and nuclei of corpus striatum is more diminished in size than the corresponding white substance of the internal capsule."

Having alluded in a word to two points of interest in this case, viz., the probability that angina pectoris had been present and been masked by the rheumatic pains, and the nervous

symptoms clearly explained by the examination of the brain, Dr. Middleton directed the attention of the Society to the cardiac facts. During her long residence in the hospital he had frequently demonstrated the murmurs to the members of Dr. Gairdner's class; and his colleagues, Drs. Hawthorne and Carslaw, had also repeatedly satisfied themselves of the correctness of the record above given. From the note of 24th January, it would be seen that the diagnosis of the case had been looked upon as rather obscure, there having been a suspicion that pericarditis might be complicating the endocarditis. But there was never raised in the minds of any of them any suspicion of the existence of an auricular-systolic murmur, and hence the condition revealed by the *post-mortem* examination was quite unexpected. Even if it were granted that all the trained ears which had listened to this case had mistaken the rhythm of the murmurs, which he did not feel inclined to admit, Dr. Middleton regarded the case as one of such interest as to be worth presenting to the Society.

This being the last meeting of the Session, Dr. MC CALL ANDERSON made a few closing remarks, and the Society then adjourned.

GLASGOW SOUTHERN MEDICAL SOCIETY.

SESSION 1887-88.

MEETING XI.—22ND MARCH, 1888.

DR. JOHN GLAISTER, *Vice-President, occupied the Chair.*

SOME NOTABLE SURGICAL CASES.

BY DR. W. J. FLEMING.

THIS paper will be found at page 369 of last volume of the *Journal.*

MEETING XII.—5TH APRIL, 1888.

The President occupied the Chair.

DISCUSSION ON THE MODES OF DISPOSAL OF THE DEAD.

DR. EBEN. DUNCAN, in introducing the discussion, referred to the methods the ancients adopted for the disposal of their

dead. Burning the bodies of the dead, he said, had been practised since the earliest times by many of the European and Asiatic races. It had been carried out in Britain in pre-historic times, and burnt bones had been found in and around our own city; but with the spread of Christianity, the practice of cremation died out in Europe. The religious beliefs of the common people have a powerful influence in modifying the most deep-rooted social customs. In their ignorance of the chemical processes which lead to the dispersal of the material elements of our bodies into innumerable new forms of chemical combination, and reorganisation into new forms of organic life, all that is involved in the wonderful revelations of modern chemistry with regard to the circulation of matter was to the early Christians inconceivable. They had a firm conviction that the materials of the body, although changed in form by the process of corruption, remained in the spot in which they were laid, and from thence would rise again at the resurrection—as in Egypt they embalmed the body, so that it might be ready to start up when the last trumpet should sound. In Rome, by the end of the fourth century, the victory of Christianity over Paganism became assured, and cremation died out as a social custom. In Britain the struggle between Paganism and Christianity was more prolonged, and even when Christianity became the prevailing religion, half-converted Saxons, as has been pointed out by Professor Rolleston, would occasionally relapse into cremation, but the power of the Church ultimately became so great that the ancient custom was completely rooted out.

Dr. Duncan then proceeded to point out that, under the present system, the private cemetery companies were not included under the Burials Act of 1855. There was no adequate provision made for the disposal of the large numbers of dead bodies we had to deal with every year, and such provision as did exist being in the hands of companies conducted on purely commercial principles, the burial space was very limited and the charges for graves very high. It had been computed that at the present death-rate, if the prescribed space for each body and a separate grave were allowed, 160 acres would be required for Glasgow every ten years. The present amount of space at our disposal for inhumation does not nearly come up to the amount required annually, according to the Burials Act, so that there is of necessity very great overcrowding of our graveyards. This want of space, and the consequent high prices charged for graves, has given rise to

the horrible system of pit burial, of which we have heard so much recently. The pits are dug in the common ground, that is to say, in the ground not taken up by private lairholders. In the Southern Necropolis, for instance, the pits are dug out about 4 feet broad, $7\frac{1}{2}$ feet long, and 8 feet deep. Into these pits are put double rows of adult coffins, built one on top of the other, like bricks in a brick wall, with a few inches of sand between, until the pit contains its full complement of eight adult coffins. As these coffins do not fill up the whole of the grave, the space left is filled with infants' coffins and those of young children, so that there ultimately may be sixteen or more coffins in one common grave. During the time that the coffins are being built into their places, the only medium for absorbing the offensive gases arising from the decomposing dead, is the stratum of three or four inches of sand on the top of the coffin lids. The grave is not filled up with earth until the pile of coffins reaches to within three feet of the surface of the ground. The pit remains open, the top being covered with a few loose planks, sometimes for a week, sometimes for ten days or longer, according to the rapidity with which the supply of coffins comes in, and in the summer time it is impossible to keep down the smell in that part of the graveyard.

In Sandymount the system differs in respect that only one pit is dug out at a time, and that there is no attempt at covering the lid of the coffin last put down. One coffin is piled on the top of another, until the grave is filled up to within three feet of the surface; then, and not till then, the grave is covered up and a new grave dug, at a distance of 12 inches and alongside the newly filled one. These pits are estimated to accommodate five adult coffins, or a much larger number of children.

At Dalbeth a large area is already filled with burial pits of larger size, and containing a greater number of coffins. In this cemetery Dr. Duncan stated that he had seen a new pit opened on the slope of the ground near the river. The soil was damp clay. The pit measured $7\frac{1}{2}$ feet square and 12 feet deep. It contained ten or twelve adult coffins, and a large number of little ones. They were lying at the bottom of this damp clay hole, quite uncovered, without even a boarding over them, and they remained so until the pit was filled up with coffins to within three feet of the surface, when it would probably contain about thirty adult coffins and as many children's. The smell at that time from the decomposing bodies was very disagreeable, in fact, the whole neighbourhood of the pit smelt badly. This state of matters is so bad that

the very undertakers cry out against it, and yet the funeral service is read over the edge of this mass of corruption, and the priests, relatives and friends alike are subjected to its unwholesome and dangerous effluvia. On the Sundays quite a crowd of the lower orders of the people gathered about the place, attracted by the ghastly spectacle, and undeterred by the evil odours of the locality, which in summer are most offensive and dangerous to health.

This system of disposing of the dead is not confined to these cemeteries mentioned. It is carried out—perhaps not so offensively, but by similar methods—in all the cemeteries of Glasgow which sell common ground to the poor. If they do not bury in pits they bury in indiscriminate piles, and none of them conform in any respect to the regulations which the Government has laid down in the interests of public health and decency. These methods of treating the bodies of the poor would not be tolerated in any other country in Europe.

As a result of this system of pit burial, the soil beneath and the air above become tainted with the unwholesome and poisonous products of decomposition. The sewers leading away the subsoil drainage become foul, and the streams into which these sewers empty become tainted, not only with the products of decomposition, but also with the germs of the contagious diseases. These places are not graves, but pits of putridity and mines of profit to the shareholders. The cemetery companies reserve to themselves the right to re-allocate common ground at the end of ten years. The remains of the dead may be thrown aside, and the soil which has been winnowed from the remains of its former occupants may again be used for the burying of a fresh pile of coffins. There may be no end to the pollution, and no end to the desecration of the graves of the poor under the present *régime*. The duty of supplying burial grounds should be taken away entirely from the commercial bodies and vested in the State; for the principle of applying the spirit of commercial enterprise to cemeteries is vicious. The time has surely come when all trafficking in the spoils of poor humanity should cease, and when the whole process of interment should be undertaken as a solemn and pious duty which society owes to the remains of all her members, however exalted or however humble.

Dr. Duncan then proceeded to discuss what remedial methods should be adopted regarding the disposal of our dead. If inhumation was to be continued, then he thought that the Local Authority should provide proper burial space for the poor free of cost. With regard to cremation, he con-

tended that it was the proper and only means that should be adopted from a health point of view. In support of this, he referred to the well known observations of M. Pasteur on the propagation of splenic fever from the buried remains of a cow by the agency of worms. The cow had been buried at a depth of seven feet. He also pointed out that the organism which produces yellow fever is freely propagated in the soil of the graveyards of Rio Janeiro, and that it had spread from the dead bodies of the persons who had died of the plague. On that account a water supply taken from the neighbourhood of a graveyard is highly dangerous. When bodies are cremated the germs of disease are destroyed, and no injury to the health ensues.

Dr. Duncan then referred to the law on burials in England and Scotland, and also to the various kinds of coffins used to facilitate the rapid disintegration of the remains. He also dealt with the medico-legal objections raised against cremation, and gave a very interesting account of some experiments he had conducted by cremating the bodies of cats, rats, &c., into which solutions of some metallic poisons had been injected.

The President said that, till he had read the correspondence which had appeared in the daily papers quite recently, he had no idea pit burial was practised to such an extent and with so little regard to decency. Dr. Duncan deserved the thanks of the public for moving in this matter as he had done. In the course of his remarks the President referred to the question of funeral reform, and stated that, in his opinion, funerals were not conducted as they ought to be, too much money being expended even by the very poor. For one thing the expensive coffins now in use should be done away with. A wicker coffin would be very much cheaper, and would hasten the decomposition of the body which, so long as inhumation was practised, was very desirable. Of course it was not easy to bring people's minds to such matters, but as far as possible it ought to be done, and even a clause should be inserted in the wills of those desirous of reform in funerals, and those who approved of cremation, so that their remains might be disposed according to their own ideas.

Regarding the risk of cases of poisoning being undetected, he thought that if a system of *post-mortem* examination was introduced, all doubtful cases could be carefully gone into. The President then pointed out that this had already been strongly advocated before the Society by Dr. Tindal, and later, by Dr. Glaister. Regarding the commercial element

in cemeteries, the President said the profits were very large. He had been solicited to take shares in a new burial ground, but he declined to do so. He did not think any one should be allowed to make money in such a way, and more especially from the atrocious system of pit burial of the poor.

Dr. Erskine spoke of the ever increasing evil of the encroachment of graveyards on the land required for habitation, and thought that formed one of the most prominent objections to the present mode of earth burial. If the Burials Act were strictly observed, that evil in regard to the occupation of space would be much greater than at present. He referred to Dr. Duncan's pamphlet, supplemented by his remarks now made before the Society, as also to Sir Henry Thompson's article on the progress of cremation in the January number of the *Nineteenth Century*, as comprising all the most recent information on the subject. Dr. Erskine was afraid cremation would not for a long time meet with the approval of the common people of this country, particularly on account of the religious objection based upon the doctrine of the resurrection of the body. He considered that much good would result (1) if all graveyards were brought under proper State regulations; (2) if greater economy was observed both by rich and poor; and (3) if perishable coffins were used. The public attention might be successfully engaged in these directions. It might also be possible to make arrangements for the cremation of the bodies of patients who had died from infectious diseases. Dr. Erskine expressed himself strongly in favour of cremation as being the best mode of disposing of the remains of the dead, and superior in every way to earth burial. While in India two months ago he had witnessed the cremation of the bodies of the Hindus conducted in a very rude and extensive manner. It was also interesting to note the sanitary principles on which the Parsees acted in the disposal of their dead. In the vicinity of the city of Bombay Dr. Erskine had visited the Towers of Silence, on the tops of which the bodies are exposed. Great numbers of vultures swooped down and appropriated the soft parts of the corpse. In about a fortnight the mourners returned and placed the bones in the central well of the tower. The prophet Zoroaster, the founder of the Parsee religion, had taught that the elements were the symbols of the Deity and must not be defiled by contact with putrefying flesh. Therefore the Parsees built towers on the top of hills away from human habitation, and there their dead were laid not necessarily to be consumed by vultures, but to

be dissipated as rapidly as possible without polluting earth, fire, or water, or contaminating a single living being. The vultures are regarded as sent by God to act as the scavengers of human carnage. The rain-water that washes and filters through the bones in the central well is conducted by channels through charcoal, so that it returns pure into the soil. It might be possible for us to take a lesson from the Parsees in the direction of improving our method of disposing of the remains of our dead.

Mr. Gilmour said Dr. Duncan had narrowed the subject by limiting it to the methods at present used in Glasgow. He agreed that the evils of pit burial referred to were most deplorable, but said it was preposterous to submit cremation as the best and only proper remedy, for the remedy was inapplicable; the growth of an enlightened public opinion favourable to cremation was so very slow that we need not expect to see it adopted to any extent in our day. It had taken the London Society five years to obtain forty-five cases from the whole country! No mention had been made of deep sea burial, which he thought, apart from the religious sentiment, would be the best and most philosophic method of disposal of the dead, as it kept the great organic cycle unbroken. But he maintained that the Christian religion was distinctly in favour of, if not pledged to, inhumation, and that the doctrine of the resurrection of the dead almost limited its believers to earth burial. He said that funerals as at present conducted are a heavy tax upon the living, and advocated simple and cheap methods of interment, but remarked that it is a curious fact in morals that burial in every age and country has been a very costly ceremonial, the practice alluded to by Schiller

“Alles sei mit ihm begraben
Dass ihm freuden mag”

being probably more costly to savage communities than our elaborate funerals are to us.

Dr. Stewart said he had been very much interested in what he had heard, and at the system of pit burial as it had been described by Dr. Duncan. Pit burial was a hideous custom; but at the present time the poor had no other way of disposing of their dead. He thought that so long as people looked on inhumation as they now did, there would be no change for the better; and it would be a good thing if a crusade were raised against their material views. In the meantime, however, a good deal could be done in the way of having cheap and perishable coffins, and some chemical agent,

such as quicklime, might also be used to hurry on the decomposition of the body. He did not think that Mr. Gilmour's view of sending bodies out to sea to be buried was a practicable one, on account of the great expense that such a method would involve.

Mr. Knox said he agreed with Dr. Duncan's conclusions. The disposal of the dead was one of the difficulties of modern life, and the disposal of the dead poor was especially a difficult matter. By pit burials the senses were shocked and disease was propagated. As to separate graves being used for each coffin, even they in time would be turned up and used over again, and a very great amount of land under this system would be removed from the use of the living. He thought that every one should make some provision for burial when dead; and in the case of paupers or very poor persons graves should be provided free, or at a very small charge. The great difficulty in introducing cremation was the supposition that they would arise again in the flesh. He did not consider that the sentimental element should interfere in the matter at all, and he did not think that the Bible showed any preference for one form of burial more than another. Even St. Paul did not say with what kind of body we would rise. In his opinion it did not matter in what way the destruction of the body was accomplished, for it was simply a dissolution of the elements, which might as well be done by means of fire as by any other agent. He also referred to the question of expense and to the benefits to be derived in cremating infectious cases, and said that if the rich and educated people were to set the example by having their bodies cremated, the poor would follow by and bye.

Rev. Dr. Jeffrey said he had long been interested in the matter of cremation, and the late revelations regarding pit burial had increased his interest. Speaking for himself, he said that he would like to be cremated when dead, and that he had the same feeling for all who were near and dear to him. He thought the religious difficulty a very small one. According to the Bible nothing had been said against cremation. He did not see any difference in having the body dissolved into its original elements by fire in two or three hours, and having the same thing done by burial. The revelations lately made to the public of Glasgow regarding the disposal of the dead bodies of our poor were horrible, and the kind of respectability of the shareholders receiving big dividends out of cemetery companies was not such as could be praised. He hoped that some good result would

come from this discussion, for it had been clearly shown that immediate dissolution of the body by cremation was ten thousand times better than by slow decomposition as occurs in ordinary earth burial.

Dr. Park said he was thoroughly in favour of cremation, and that *Dr. Duncan* should keep at the subject he had already so well worked up and brought forward, so that some good might result. When they reflected that within the last 20 years the Scottish Sacramental Fast Day had been abolished, he thought that before other 25 years had passed they would have cremation. The public owe their thanks to *Dr. Duncan* for moving in such an important matter as the disposal of the dead, and more especially as the present system of burying is a source of danger to the public health.

Mr. Carr thought that cremation, as a mode of disposal of our dead, would not become general for a long time. Sentiment formed a strong element in the case; at the same time it was very difficult to say what might take place during the next 25 years. He wondered how it was that the shareholders, in some of the cemetery companies, had not troubled consciences, when they knew that their large dividends were derived from burying in pits a great number of the poor. He knew some of those interested in the cemeteries, who held their heads very high in public life, and whose actions were not such as to lead any one to suspect that they were the recipients of money ground out of the wretched poor. In regard to burial in earth he thought that some means should be adopted so that the decomposition of the bodies might be hastened. By the use of shrouds or wicker coffins, and with the aid of some chemical agent, he thought decomposition might be induced in about 3 years after interment, but quicklime he did not consider suitable. He was of opinion that chemists, working in consort with funeral reformers, might do a great deal to help to purify the air.

Mr. Maxwell Adams thought that cremation was good. In regard to burial, he did not approve of vaults or air-tight coffins. Decomposition could not go on rapidly without free access of air, and something should be done in cemeteries to promote this, as, for instance, burying in loose, porous soil. He also thought that private cemetery companies ought to be prevented from trafficking in the dead. In cremating the bodies of those who were supposed to have been poisoned, the volatilised products of the combustion could be preserved for chemical examination.

Dr. Barras said he was in favour of cremation. He

thought that at present an extortionate tax was imposed on the dead. The legislature ought to intervene in the matter of providing proper soil for burial purposes. He described the dry and pulverised condition of the bodies he had observed at the Hospice of St. Bernard, where the air was very cold. After a time the bones fell to powder, which was collected. He considered that the adoption of cremation would make the land cheaper for purposes of interment.

Dr. Tindal pointed out that the drainage from cemeteries was apt to pass into water reservoirs, as at Ardrossan, where the reservoir was at a lower level than the burying ground, and fever was endemic in the district.

At the close of the discussion, the following motion was proposed by *Dr. Duncan*, and unanimously adopted:—"That this Society memorialise the Secretary for Scotland to take steps for the amendment of the Burials Act, so as to place the Private Cemetery Companies of Scotland under the regulation issued by the Home Secretary in 1863 for burial grounds, under the Burials Act; and that it be remitted to the Council to prepare the memorial on behalf of the Society."

MEETING XIII.—19TH APRIL, 1888.

The President in the Chair.

CASE OF EXTROVERSION OF THE BLADDER.

DR. ARCH. JOHNSTON showed a case of extroversion of the bladder in a male child aged $4\frac{1}{2}$ months. The openings of both ureters were visible, the glans penis was distinctly cleft in two, the symphysis pubis was absent, and there was hernia on each side.

Dr. Knox made some remarks on the case, and observed that though his opinion as to the efficiency of operative treatment in such cases was unfavourable, yet he thought as there was little exposure of the bladder an operation might give the child some control over the bladder and render it more cleanly.

MEETING XIV.—3RD MAY, 1888.

The President in the Chair.

**NOTES OF LARYNGEAL CASES ILLUSTRATING DIFFICULTIES OF
DIAGNOSIS WITH REMARKS ON TREATMENT.**

MR. MACINTYRE read notes of laryngeal cases illustrating difficulties of diagnosis, with remarks on treatment. He described some cases in which such reflex symptoms as coughing was occasioned by irritation from other parts, as the nose and naso-pharynx, in rhinitis, nasal polypi, and the presence of foreign bodies. The latest modes of treatment were described in a practical manner.

MEETING XV.—11TH MAY, 1888.

MR. T. F. GILMOUR in the Chair.

THIS extraordinary meeting was called "To consider the Universities (Scotland) Bill, and if so resolved to petition Parliament in its favour."

The business was introduced by Mr. Knox, who was supported by Dr. Duncan, and after discussion it was unanimously resolved to petition Parliament in favour of the affiliation clauses in the Bill.

**GLASGOW OBSTETRICAL AND GYNÆCOLOGICAL
SOCIETY.**

SESSION 1887-1888.

MEETING VII.—25TH APRIL, 1888.

The Vice-President, MR. STUART NAIRNE, in the Chair.

MR. ROBERT JARDINE, M.B. and C.M., was duly elected a Fellow.

DISCUSSION ON TRACHELORRHAPHY.

DR. ROBERT PARK then introduced a discussion on trachelorrhaphy. He took as his text the conclusions of Professor

Nöggerath, of Wiesbaden. He considered it was remarkable that 50 bilateral lacerations reaching up to or beyond the vaginal insertion could have occurred within one man's practice, and these, moreover, selected cases, suitable for comparison with 50 cases where there had been no laceration at all. He thought such cases must be more common in Germany than in this country. He had found that laceration was no barrier to conception, even when extensive, and it was not a necessary cause of miscarriage ; but he considered that the proposition that women with lacerations are more prone to conceive than those without, and they are also less liable to miscarry, would not be borne out by fuller investigations. He believed that though the position of the womb might not be directly affected by lacerations, nevertheless the sure tendency of the latter was to superinduce changes the ultimate effect of which would be to affect it. He was perfectly satisfied that elongation of the uterine axis was both a direct and a remote consequence of laceration. The advocates of trachelorrhaphy maintained this, and he agreed with them ; but when they stood out for trachelorrhaphy as the only cure he disagreed with them, considering that there were various lines of judicious treatment whereby the morbid conditions could be remedied and all the concomitant phenomena cured apart from that. Under the head of treatment he included lactation, as its influence, or the absence thereof, had to be taken into account in estimating remote effects.

When he came to consider the question in respect of the comparative frequency of erosions and ulcerations and disease of the cervical and corporeal tissues, he said it would take a much more extended series of observations to make him believe that deep lacerations of the cervix were not, *per se*, predisponent to morbid action as well as exciting causes of activity to dormant diatheses.

To the assertion that "eversion of the lips was never the direct result of a laceration," he ventured to give a direct negative, and quoted a case in point, indicating at the same time that, for the purpose in view, one carefully observed case was as good as a dozen.

The case was that of a primipara, æt. 25. The child was a large male with large head. The waters broke rather early and the pains were for a time, till the vertex passed the cervix, which it did somewhat suddenly, very vehement. Labour was also somewhat impeded by the anterior lip descending in front, but instrumental interference was not required. Examination 14 days after labour revealed a

laceration in right oblique direction. There was marked ectropium, as seen through a Reid's, and subsequently through a Sim's, speculum. After treatment, extending over six weeks, the laceration healed, the uterus then measuring three inches. The patient's health was fairly good, and as she nursed her baby and he thrived well, it was hoped that the subinvolution would disappear with time and the use of the douche. After some months however, she began to complain of very definite symptoms, nearly all of which are tabulated by Barnes, Edis, Galabcin, and others, in this country, and by Emmet and Thomas in America, as arising from laceration of the cervix. In November, 1886, she consulted Dr. W. L. Reid, who found "the cervix rather low and ectropic, being badly split in right oblique diameter, the erosion not so marked as one would have been disposed to expect, and the sound passing to 3½ inches easily, and showing by bimanual examination that considerable hypertrophy of the body exists." In this case it was clearly shown that not only the direct but the remote consequences of the laceration were ectropium and subinvolution, with all their inevitable accompaniments. The clinical facts were entirely at variance with Næggerath's teaching upon this point. On the other hand, after three months' treatment, the subinvolution and hypertrophy were very sensibly reduced and the concomitant phenomena disappeared. She became pregnant and had another son in December, 1887. None of the old symptoms have returned, but special means were taken to insure involution.

The case further illustrated what must be a familiar fact—that trachelorrhaphy need not be resorted to except in cases of exceptional degree or until other means of relief had been tried and found wanting.

The final contention of Næggerath that "the restoration of the shape of the cervix can have no influence on the uterus," he left to the criticism of those Fellows who were able to do so. For himself, he had never performed the operation or required to have it done.

Dr. Samuel Sloan thought the Society was indebted to Dr. Park for introducing this subject, but he would have liked the discussion to have embraced the important question of the prevention of cervical laceration. He did not think these lacerations did any harm mechanically, nor was their repair likely to do much good. They were of importance mainly, if not wholly, by reason of the risk of septic absorption—possibly general, but more frequently local—which took

place during the puerperium ; and in the latter case they left the woman at the close of that period with a subinvoluted womb, an unhealthy raw surface at the apex of the cleft in the cervix, and some induration along the broad ligament of the corresponding side. This, which seemed to have been the case in Dr. Park's patient, was a condition amenable to local and general treatment without stitching. He thought, however, the operation was justifiable if performed a few hours after labour, if the tear were a severe one, to remove the risk of septic absorption. Lacerations of moderate degree only required some additional care during the puerperium.

Dr. Oliphant thought split cervix much more common than Dr. Park seemed to think. The position of the split made a great difference in respect of consequences. He remarked upon the fact that in the case related the uterus had actually hypertrophied betwixt the date of cessation of primary treatment and the examination by Dr. Reid. He had had experience of one case which had resisted local treatment, but had been cured by the operation of trachelorrhaphy.

Dr. Robert Pollok gave an interesting account of a visit he had paid to Emmet's Clinic, where he had the good fortune to see that surgeon perform the operation on a very ragged cervix. The operation lasted one hour and forty minutes. He could not say what the ultimate result may have been, but the immediate result was to bring about an appearance closely resembling the normal.

Dr. Turner dwelt upon the difficulty of preventing lacerations where there was rigidity of the os and cervix. He could recall several cases where the patient had been treated by several medical men without avail, but had been relieved entirely by trachelorrhaphy. He agreed that lacerations did not prevent conception.

Dr. Nigel Stark had often wondered why trachelorrhaphy was so seldom performed in this country compared with America. It appeared to him that the eminent American gynaecologists, Emmet, Thomas, Sims, and Mundé, must have obtained good results from it, and that their opinions were entitled to respect. As he frequently met with lacerations in the Gynaecological Room at Anderson's College Dispensary, he was inclined to think that they were more common than Dr. Park supposed. He had not been able to determine whether the subinvolution stood in the relation of effect to cause. He thought ectropion and erosion the most common results, these, again, leading to leucorrhœa and menorrhagia. He thought the erosion, when severe, intractable, and persistent,

might not unnaturally be expected to at least predispose to carcinoma at the menopause, as we knew that any long continued irritation of any part might cause cancer. He thought trachelorrhaphy might have suffered from too enthusiastic friends, and that it should not be done in every case, but where (1), treatment by douches, tampons, &c., had failed; (2), where leucorrhœa, menorrhagia, or dyspareunia were urgent and distressing symptoms; and (3), where, from hereditary bias, cancer was to be apprehended. He remarked (with reference to a comparison instituted by Dr. Sloan betwixt splitting a cervix for sterility and the obstetrical accident) that the two things were nowise comparable—the one being a clean cut and healing only too readily, and the other being frequently a bruised and ragged tear, and healing with difficulty owing to the circumstances under which it took place.

Mr. Nairne said he had performed this operation frequently, and perhaps unnecessarily; but he thought all lacerations of greater degree should be operated on when they were simple. On the other hand, compound lacerations, such as that referred to by Dr. Pollok as having been operated on by Emmet, were better treated by amputation of the cervix or destruction by Paquelin's cautery.

Dr. Park said there was no ground for Dr. Sloan's assumption that the case related by him was one of local sepsis. It so happened that the temperature had been taken night and morning throughout the puerperium, and it had been completely apyretic. He thought Dr. Sloan gave too much importance to these lacerations as entering into the etiology of sepsis. He was glad Dr. Oliphant had emphasised the fact of leading importance in the case—the hypertrophy, to wit. No case could more clearly prove that these lacerations, when in the oblique direction and sufficiently deep at least, did act mechanically. He quite agreed with Drs. Oliphant and Stark that in gynaecological practice lacerations were commonly met with; but he reminded them that Nœggerath's laceration cases were bilateral and selected. He thought that in home obstetric practice it was a very rare thing to have deep bilateral lacerations. He had only had experience of three cases in all his practice, and these were all unilateral, and they had all occurred in cases where the cervix had been more or less callous and unyielding, but where no instrumental interference of any kind had been called for.

ABSTRACTS FROM CURRENT MEDICAL LITERATURE.

GYNAECOLOGY AND OBSTETRICS.

BY R. STEVENSON THOMSON, B.Sc., M.B., C.M.

On the Use of the Vaginal Tampon in the Treatment of Certain Effects following Pelvic Inflammations. By Thomas Addis Emmet, M.D. (*New York Medical Journal*, 18th February, 1888.)—Dr. Emmet, in the early portion of his paper, confesses to having been formerly greatly prejudiced against the practice of packing the vagina for the removal of pelvic inflammation, on account of the damage he had so frequently observed follow on this mode of treatment when employed by others. Setting aside his own prejudices, he instituted a series of observations with a view to discover, if possible, the class of cases in which the practice might be carried out with some reasonable prospect of a favourable result.

After outlining his course of study bearing upon pelvic inflammation in the female, and his method of treating all kinds of pelvic inflammations by means of hot water injections, Dr. Emmet goes on to state that, in his opinion, the uniform pressure exerted by the vaginal tampon is of value only after every sign of acute pelvic inflammation has disappeared, and that the failure to recognise this cardinal point in the cause of the suffering so often complained of by patients, and of the unsatisfactory results which so often attend this means of treatment. The cases in which the author thinks special benefit is to be derived from the use of the tampon are those in which there is reason to suppose the blood-vessels are varicose, and where this state of the veins has been brought about by local peritonitis with adhesions, by the loss of the connective tissue, and by injury when the vessels have been involved.

The absence of inflammatory symptoms indicates the stage at which the tampon may be applied, the subsidence of inflammation being especially indicated by the failure of the thermometer to register an elevated temperature in the pelvis. The presence of pain on pressure is not supposed to indicate active inflammation, though its presence is of value as a guide to the manner in which the tampon should be applied, lest a fresh attack of inflammation be set up.

The tampon acts mechanically, and as pressure from it is not sufficiently great to occlude the arteries, its use in acute inflammation is more likely to do positive harm than good; while, on the other hand, in chronic cases it acts beneficially by compressing the dilated veins and lifting the uterus into its natural place in the pelvis, and so equalising the circulation between the arteries and veins. In cases of ruptured perineum the parts may have to be prepared by the use of tampon, and hot douche for the operation which is to restore the integrity of the pelvic fascia and other structures; but it is in the treatment of the effects of a local peritonitis that its action is most beneficial, the tampon, by its steady and uniform pressure, maintaining the uterus in its natural position, and separating the adhesions in such a manner that the tissues of the pelvis are encouraged to regain their tone, the smaller veins assuming, as a consequence of this, their natural and tortuous course. We can gain permanent good from the use of the tampon only after a course of treatment which may extend over many months.

To prepare the tampon Dr. Emmet cuts cotton wool into pieces about the width and thickness of four fingers. These are then caught by the four corners, and thickly smeared on the outside with vaseline, with the double object of facilitating their introduction and preventing the balls pressing together from the absorption of moisture.

The practice of completely packing the vagina while the patient is in the knee-chest position is condemned, because it stretches and straightens out the veins, as occurs in prolapse, the uterus being in this position as much *above* the "health line" as in prolapse it is *below* it. In some cases, however, it is necessary to commence the packing of the vagina in this position, so as to replace the uterus. After several balls have been introduced so that the uterus can be held in position by the finger, the patient is turned on her back and the packing completed by passing ball after ball along the index finger, which is employed in holding back the perineum and maintaining the uterus in position. After the introduction of a sufficient amount of cotton, the index finger should be carefully passed over the whole to smooth down the entire surface and feel that the balls are uniformly placed. From the coherency of the cotton and vaseline, it is possible thus to pack any portion of the vagina—*e. g.*, the upper part or only one side.

In carrying out this treatment it is of great importance to maintain the uterus in its natural position throughout, and to renew the tampon without delay after the other has been removed.

At the menstrual period the tampon is removed, and its place supplied by a rubber ring of a size to admit of the introduction of the finger between it and the vaginal wall at any point. These rings are about three-quarters of an inch in diameter, and form a very good substitute for the tampon so long as the patient maintains the horizontal posture. When the flow has ceased, a large hot vaginal injection is administered and the use of the tampon resumed.

Hegar's Sign of Early Pregnancy. By Dr. Mitchell.—The diagnosis of pregnancy during the early months is frequently a matter of great difficulty and consequence, and any sign upon which the profession can rely implicitly in the diagnosis of an early pregnancy must be of value.

Since Hegar first laid stress on what has been termed Hegar's sign, various practitioners have tried the value of it, thus, Dr. Reihl has found it has failed in only two out of twenty-two cases; Dr. Grandin is inclined to "consider it infallible."

Dr. Mitchell has diagnosed pregnancy correctly in the early months in nine cases that have come under his notice; in two of them pregnancy was not even suspected, while in another the patient had been informed by her medical attendant that she was not pregnant. The signs consist in the uterus losing its pear-shaped outline, "the body being bellied out over the cervix in all the transverse diameters, especially antero-posteriorly." The examining finger will best "note the change in the anterior *cul de sac* of the vagina."—(*British Gynaecological Journal*, 1887.)

Observations on the Puerperal Pelvic Ligaments.—Dr. Stephen W. Driver, of Cambridge, Mass., read a paper upon the above subject before the Massachusetts Medical Society, 7th January, 1887 (*Boston Med. and Surg. Journ.*, 15th September, 1887).

After quoting very briefly the contradictory opinions of various authorities upon the subject, he gives the results of his examination of nearly 300 consecutive cases, which, with careful experiments with articulated pelvis, have convinced him that a certain amount of relaxation, permitting movements of the bones, is common or even usual before and during labour, and while it may favour easier delivery at the time, it may by excess or undue persistence afterwards be a cause of serious disability. The movement at the symphysis pubis is up and down, the one bone sliding upon the other. At the sacro-iliac synchondrosis it is pivotal, upon an axis passing through both the joints, *i. e.*, it is a movement of flexion or extension of the pelvis upon the spine. The movement at the synchondroses it is impossible to detect in the living body, but that at the symphysis may be easily appreciated. His method of examination is as follows:—"While the patient is lying flat on her back, with both legs extended, I pass my forefinger within the vulva, under the arch, pressing back with the end of the finger the meatus urinarius, and thus having

the pubic junction resting upon the first joint or phalanx. I ask the patient to draw up her leg, first one and then the other. I can perceive the slightest motion, for there is nothing between the ligaments and my finger but the mucous membrane. The weight of the leg is a strong leverage, acting through the iliocostalis and psoas muscles as they pass over the horizontal ramus of the pubes. The internal muscles of the thigh that are attached to the pubes also aid. For instance, as the patient draws up the left leg, the left pubic ramus will be pressed downwards, and its motion will be felt and can be measured by the finger. If the right leg be lifted from the bed, the right pubic ramus will be depressed. When the test is made with the patient standing on her feet, if she stands on her left foot the weight of the right leg and side of the body will carry that side down and *vice versa*. This is the most radical test of pubic motion. If the tissues of the mons veneris are thin, the motion can well be perceived by the finger pressed on the front of the junction, or even grasping it above and below."

Out of 300 cases seen since 1878 he tested in this way 275. In 25 per cent only he found no motion: in the rest mobility existed. In 44 per cent of the whole tested the mobility was decided; in one and a half per cent it rendered special treatment necessary.

He gives details of several cases where the persistent mobility caused considerable distress or even very marked lameness. In most of them the application of a firmly buckled belt, held down by perineal straps, gave great relief.

That similar mobility exists in the sacro-iliac synchondrosis is less open to direct proof, but the similarity in the structure of the joint as well as the pain in that region in cases in which undue mobility of the pubic joint could be detected, justify the inference that such exists.

The experiments with articulated pelvises showed that even a slight degree of movement in the joints might give decided increase in some of the pelvic diameters during labour. The descriptions, illustrated with diagrams, may be briefly summarised thus:—A rocking movement of the two halves of the pelvis upon the pelvic junction produces separation of the ischial tuberosities. A widening of the lower end of the pubic joint to the extent of one-tenth of an inch will increase the distance between the ischia two-thirds of an inch.

A movement of flexion of the pelvis upon the spine widens the antero-posterior diameter of the outlet. A movement of one-tenth of an inch at the lower part of the sacro-iliac synchondrosis increases the distance between the coccyx and pubis nearly one-third of an inch. (During the later stages of labour.)

A movement of flexion widens the antero-posterior diameter of the brim during the earlier stages of labour. A movement of one-tenth of an inch at the lower part of the synchondrosis increases the distance between the sacral promontory and the pubis by one-fourth of an inch.

If each of the three joints yields to intrapelvic pressure to the extent of one-tenth of an inch, the transverse diameter of the cavity will be increased nearly three-twentieths of an inch. Previous writers have been misled by the relation of the circumference of a circle to its diameter into magnifying the amount of separation necessary to increase any diameter. In fact, it is only one diameter that gains anything, and it gains it all, because the movement is a separation of the two halves of the pelvis by one-fifth of an inch posteriorly and one-tenth anteriorly.

The author's conclusions, based on 300 puerperal cases, and also numerous virgins, are as follows, but abbreviated:—

"1. That the presence of relaxation depends very much upon the strength of the bony and ligamentous structures.

"2. That age does not determine its presence or the degree of it.

"3. It is not constant, but a degree of it is natural at time of labour, and may exist during pregnancy, even in the early months.

"4. There may be great motion and no lameness or impairment of walking power.

"5. There may be a small degree of motion and great lameness.

"6. Lameness depends upon pathological condition of the junctions, pubic and sacro-iliac.

"7. Pain at the sacro-iliac junction of one side proves that on that side is the pivotal motion of the ilium on the sacrum. It may occur in non-puerperal females.

"8. Patients may recover from a most serious condition of lameness without treatment.

"9. The most careful treatment may not restore firmness.

"10. Many a case of lingering disability after confinement, with what the doctor considers vague complaints, may have been due to this cause; and it is well, when you cannot find out 'what is the matter,' to test the condition of the pelvic ligaments.

"11. A small degree of relaxation or separation may facilitate delivery, and may be the factor that saves the use of the forceps."—D. M'P.

DISEASES OF THE EAR.

BY DR. WALKER DOWNIE.

Abscess of the Cerebellum Caused by Disease of the Ear.—Dr. Thomas C. Smith, of Washington, reports a case which occurred in his practice. The patient, a girl aged 15 years, suffered from otorrhœa, dating from an attack of measles in infancy. She now complained of headache, accompanied during the last fortnight of life by convulsions. The left meatus was so much obstructed by granulation tissue growths that the deeper parts could not be viewed. She latterly became comatose, and died without developing any paralytic symptoms. At the *post-mortem* the tympanic cavity was seen to be greatly enlarged from progressive excavation of bone, and on its posterior wall was a perforation through the petrous portion of the temporal bone, around which the dura mater was adherent. The cerebrum appeared normal; but on examining the cerebellum, the anterior half was seen to be converted into an abscess.—(*Journal of the American Medical Association*, February, 1888.)

Deafness from Stimulation of the Retina.—M. d'Arsonval recently related before the French Academy of Medicine a curious experience. After gazing for a few seconds on an arc light of intense brilliancy, he suddenly became deaf, and remained so for nearly an hour and a half. Reassured by the disappearance of the symptoms, he repeated the experiment with the same result. When only one eye was exposed to the light, no very marked effect was produced.—(*Medical Press and Circular*, 13th June, 1888.)

The Treatment of Perforation of the Membrana Tympani, by the application of a small piece of fresh pellicle of the egg, has for a time been practised by Dr. Polo, of Paris. The grafting of this delicate substance is difficult, and requires considerable dexterity; but when once satisfactorily applied it causes no irritation, like gold-beater's skin, and it may be retained in position for a lengthened period—in some cases as long as eight and ten months.—(*Journal of Medicine of Paris*, April, 1888.)

Acute and Chronic Inflammations of the Middle Ear.—Dr. Laurence Turnbull, in a paper in the *Polyclinic*, makes some observations on the pathology of acute and chronic inflammations of the tympanum, together with their complications and the treatment followed by him in such cases. Medical men are now so familiar with the acute form as it occurs in children,

that it is treated promptly, and thus a smaller number of cases are now permitted to pass into the second or purulent stage, which results in such extensive and serious changes in the hearing apparatus. As the epithelium and sub-epithelial lining of the tympanum take the place of the periosteum in the blood supply of the osseous walls, any serious affection of those parts will ultimately react upon the nutrition of the bony walls, and thus a neglected catarrh may end in ostitis. In the treatment of such cases he considers that no agent has acted so promptly and well as finely *levigated* boric acid, alone or in combination with iodol (iodol, 1 part; boric acid, 10 parts). He recommends the boric acid to be sterilised before use by heating in a platinum foil, and that it should be introduced through the perforation into the tympanic cavity. He has had none of the complications from retention of the secretions while using the boric acid reported by some aurists, and he states that v. Bezold, of Munich, who introduced this method of treatment many years ago, has had a like happy experience.—(*Polyclinic*, May, 1888.)

On Bacterial Invasion of the Inner Ear in the Course of Diphtheria.—Dr. Moos, of Heidelberg, in the *Archives of Otology* for March, 1888, contributes an elaborate paper on the above. Three years ago he published a paper on the histological appearances of six temporal bones derived from children who had died of simple diphtheria. In those cases there was nothing abnormal detected in the labyrinth. These results were not satisfactory, inasmuch as they did not explain certain severe and peculiar disturbances of hearing, which, in many cases, follow diphtheria, and which, from symptoms exhibited, point to involvement of the labyrinth. Here he again attempts to investigate the condition of the labyrinth in such cases. He describes the methods employed and the changes noticed in each individual part of the internal ear in detail. In the labyrinth and pyramid portion of the petrous bone he found streptococci—a micro-organism occurring more as an accidental complication in, than special to, diphtheria. As we have the same complex symptoms in the course of several infectious diseases, he seems to be inclined to think that they, in such cases, must be due to the presence of a specific bacterium, and not to bacteria of accidental importance, as in diphtheria.

Recent Aural Literature.—In addition to the above there are, in the *Archives of Otology* for March, 1888, the following original papers:—

1. "Fistulæ Fissurarum Branchialium, together with Peculiar Malformation of the Membrana Tympani." By Ole Bull, Christiania, Norway.
2. "Contributions to the Anatomy of the Ear." By Dr. A. Barth, Berlin.
3. "Bilateral Labyrinthine Affection during Cerebro-Spinal Meningitis," and
4. "Labyrinthine Disease in a Case of Leukæmia." By Dr. H. Steinbriegge, Giessen.
5. "Carcinoma of the Ear." By Gordon Bacon, M.D., and A. J. Muzzy, M.D.
6. "Relation of Adenoid Growths in the Naso-Pharynx to the Production of Middle Ear Disease in Children" (*Boston Medical and Surgical Journal*, March, 1888). Dr. Clarence J. Blake, of Boston, here calls attention to the importance of the symptoms arising from, and the serious consequences following, the presence of adenoid growths in the first nasal space in children.
7. "Remarks on Some Aural Reflexes." By J. Walker Downie, M.B. (*Lancet*, 16th June, 1888). Here are noted some of the more frequently occurring as well as some examples of the rarer forms of aural reflexes, with remarks on the mode of production.

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GLASGOW MEDICAL JOURNAL.

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ORIGINAL ARTICLES.

THE MEDICAL INSTITUTIONS OF GLASGOW

(Continued).

DISPENSARIES.

GLASGOW DISPENSARY FOR SKIN DISEASES, 8 Elmbank Street.—This dispensary, established in 1861, is open for out-door advice on Monday, Wednesday, and Friday, at 2 o'clock P.M., and about 1,200 cases are treated annually. In connection with it, there are 20 beds and a suite of baths in the Western Infirmary, to which the more serious cases are sent. It is supported by voluntary contributions, and by donations from patients. There is one physician; and a practical course of instruction for students is held on Mondays and Wednesdays at 2:30 P.M. during May, June, and July.

DISPENSARY FOR DISEASES OF THE CHEST AND THROAT, 107 Dundas Street.—This was opened in 1861 for the treatment of poor persons suffering from chest disease, whose circumstances rendered them deserving objects of gratuitous medical relief, and ever since its foundation the benefits which it offers have been largely taken advantage of by the sick poor of Glasgow and neighbourhood, the yearly number of applicants for advice being about 1,000, to some of whom medicine is also supplied gratuitously.

In 1876, the late Dr. David Foulis undertook, in connection
No. 2.

with this institution, the treatment of cases of disease of the Throat, a department in which he had already earned a high reputation. Until a short period before his death, which took place in October, 1881, he displayed unwearied zeal in performing the duties which he had undertaken, and the records of the numerous cases which he treated at this dispensary embrace many operations, which were attended by complete success, as well as by a great mitigation of pain and suffering. The applications for advice in this department during 1881 amounted to nearly 900 cases; and of these, 204 were patients who had not been previously under treatment.

In 1885 this part of the work was resumed; and, in 1887, 238 patients visited the institution, requiring 719 consultations.

The dispensary is supported by voluntary subscriptions, and the two medical officers give their services gratuitously.

It is open for diseases of the chest on Tuesday and Friday at 1 P.M.; and of the throat on Monday at 8 P.M., and on Thursday and Saturday at 1 P.M.

GLASGOW MEDICAL MISSION, 123 Moncur Street, Calton, and 6 Oxford Street, S.S.—The Glasgow Medical Missionary Society was instituted in 1867 by a representative Board of Directors, comprising doctors, clergymen, and commercial gentlemen connected with various evangelical denominations. Its objects are (1) to carry on medical mission work among the poor in Glasgow; (2) To encourage a missionary spirit among the medical students there; and (3) To co-operate with kindred societies in training and supporting medical missionaries.

The Dispensary at 123 Moncur Street, Calton, is open on Monday, Tuesday, Thursday, and Friday, from 11 to 1 o'clock; and that at 6 Oxford Street, S.S., is open on Monday, Thursday, and Friday, from 12 to 1 o'clock. An evangelistic service is conducted by the physician superintendents from 1 to 1.30 P.M. on these days, and every Sunday a service is held at each dispensary at 2.30 P.M.

About 20,000 new cases of all kinds are treated annually at the dispensaries, requiring about 50,000 consultations; and, in addition, visits are paid to the sick poor who are unable to attend. Two medical superintendents, two assistant physicians, two senior medical students, and five or six bible-women nurses, along with two female dispensers, constitute the medical staff. The work of the mission is supported entirely by voluntary contributions.

HOSPITAL FOR DISEASES OF WOMEN, 24 Woodlands Road.—This was founded as a dispensary in 1876, and its object is to give advice and treatment to women suffering from diseases peculiar to their sex. It is open on Monday, Tuesday, Thursday, and Friday, at 3:30 P.M., and the number of out-door cases treated yearly is about 500, the large majority being cases of uterine disease, and the remainder being affections of the bladder and rectum. The building contains two beds, and the patients, who are admitted free to these, are selected from the out-door cases, the only qualification being poverty. The institution is supported by voluntary subscriptions and also by contributions from patients. There are two physicians and one assistant physician, who give their services gratuitously.

THE GLASGOW PUBLIC DISPENSARY.—This institution, situated at 54 Dundas Street, was formed in 1876. It was established for the purpose of giving gratuitous medical advice to persons in necessitous circumstances, not receiving parochial relief, and to test the acceptability of an institution embracing provident features to the poor of the city. While a large section of all communities above the rank of actual paupers are able to maintain themselves, they are unable to afford adequate remuneration to medical men; while, at the same time, they are not so impoverished as to be unable to contribute towards such a boon, and, at this institution, while advice is given gratis to the deserving poor, such as are able are invited and requested to pay for the medicine prescribed. The Dispensary is supported by public subscriptions, the money received for drugs, and occasional contributions from patients. The medical officers receive no payment.

Opportunities are afforded to medical students to study special diseases under the medical staff, and the following special cliniques are conducted several times weekly—viz., Diseases of the Throat and Chest, Diseases of the Skin and Ear, Diseases of the Kidney and Urinary Organs, Diseases of Women and Children. Students are invited to visit patients unable to come to the Dispensary, under the supervision of one or more of the medical officers. This is one of the few medical institutions represented on the Charity Organisation Society.

ANDERSON'S COLLEGE DISPENSARY, 232 George Street.—This was opened in 1878, and has in view the twofold object

of giving gratuitous advice to the sick poor, and visiting them at their own homes when necessary.

The staff consists of seven surgeons, seven physicians for general diseases, three physicians for diseases of women and children, two physicians for diseases of the skin, one surgeon for diseases of the eye, one surgeon for diseases of the ear, two surgeons for diseases of the throat, and a medical officer to superintend the out-door visiting department, besides a dispenser of drugs, and an attendant.

It is open for advice every lawful day from 2 to 3 o'clock for general diseases; on Tuesdays and Thursdays from 2 to 3 o'clock for diseases of women and children; on Wednesdays and Saturdays from 2 to 3 for diseases of the skin; on Mondays and Fridays at 2 o'clock for diseases of the eye; on Wednesdays and Saturdays at 12 o'clock for diseases of the ear; and on Mondays, Wednesdays, Thursdays, and Saturdays at 1 o'clock for diseases of the throat. Two surgeons and two physicians are on duty for one month at a time, and they sit on alternate days—one taking Monday, Wednesday, and Friday; and the other, Tuesday, Thursday, and Saturday. The physicians for diseases of women and children, and skin diseases, and the surgeons for diseases of the eye, ear, and throat attend regularly throughout the year on their respective days. The medicines are dispensed gratuitously to such patients as are in necessitous circumstances.

The home visitation of the sick poor is undertaken within the City of Glasgow in the districts embraced within the following boundaries:—*East*, a line drawn from Charlotte Street to Tennant's Chemical Works, including High Street and Castle Street. *North*, a line drawn from Tennant's Chemical Works to head of Garscube Road. *West*, a line drawn from head of Garscube Road to south end of Finnieston Street. *South*, bounded by north side of River Clyde, from Stobcross Street to Charlotte Street. The dispensary is open every lawful day at 1 P.M., and at 1:30 P.M. the medical officer is in attendance for the purpose of receiving and entering in a book the names and addresses of patients who require to be visited at their own homes. Thereafter a list of the names and addresses of the cases, along with the names of the students in whose district the patients reside, is made out and delivered to the students who are in attendance. The senior students have the home cases allotted to them, and they, in conjunction so far as practicable with junior students, visit the cases. After a home case has been visited, the student in charge, before the next dispensary visit, enters in a

book, opposite the name and address of the patient, the nature of the disease and the treatment recommended. Each student keeps a record of his cases in a pocket register provided for the purpose. In cases of doubt, difficulty, or danger, the student consults the medical officer, and no prescription recommended by a student is dispensed unless it bears the initials of this officer.

The following table shows the work undertaken during last year:—

CONSULTATIONS.

Number of Surgical Consultations,	3,255	comprising	2,561 New Cases	
" Medical	9,219	"	6,387	"
" Consultations for Diseases of Women and Children, . . .	1,353	"	1,164	"
" Consultations for Diseases of the Skin, . . .	1,979	"	918	"
" Consultations for Diseases of the Eye, . . .	605	"	349	"
" Consultations for Diseases of the Ear, . . .	500	"	220	"
" Consultations for Diseases of the Throat, . . .	1,283	"	507	"
<hr/> Total Consultations, . . .	<hr/> 18,194	<hr/>	<hr/> 12,106	
Total Number of Prescriptions Dispensed,	. . .	. . .	. . .	18,687

VISITS.

Number of Visits to Sick Poor,	3,149	comprising	1,291 New Cases,	
		of which	40 have been Confinements.	

In addition to the above the dispensary undertakes the visitation of the pensioners on the out-door fund of the Association for the Relief of Incurables for Glasgow and the West of Scotland. These number about 150, and are attended by the students, under the direction of the superintendent of the out-door visiting department, each patient being visited on an average three times during the year.

The institution is supported entirely by voluntary contributions, and the medical men on the staff all give their services gratuitously, except one of the surgeons and the superintendent of the out-door visiting department.

GLASGOW DENTAL HOSPITAL AND SCHOOL, 56 George Square.—This dispensary was instituted in 1879, and re-constituted in 1885. The objects are—(1) To provide the

poorer classes with gratuitous advice and surgical aid in diseases and irregularities of the teeth; (2) To provide a school of dental surgery open to all students of dentistry. It is open daily from 5 to 7 P.M., except Saturday, when the hours are 9 to 11 A.M.; and the number of patients during 1887 was 8,242.

GLASGOW POLYKLINIK, 100 Elderslie Street.—This dispensary was established in 1885 by several specialists, their chief object in doing so being to obtain a sufficient supply of clinical material to enable them to teach successfully in their respective departments.

At first it consisted of four departments—namely, that for the study and treatment of (1) diseases peculiar to women; (2) diseases of the ear and throat; (3) diseases of the eye; (4) diseases of the skin. At a later date, two others were added—(5) diseases of the nervous system; and (6) diseases of the urinary organs. There are no didactic lectures; but in some instances the clinical instruction given here is supplementary to systematic courses given at the Western Medical School. It is open to medical students and practitioners. The sessions are divided into the usual winter and summer courses, except in the Gynaecological Department, where during the year there are three courses each of three months' duration, in which the number of gentlemen attending is strictly limited to three. An innovation in the conducting of dispensaries in Glasgow, and one which has proved distinctly popular with students, was here first introduced—namely, giving demonstrations in the evenings. By this arrangement a larger number are enabled to take advantage of the practical instruction.

There is one bed for the use of any patient whom it is thought advisable to detain.

The polyklinik is supported entirely by the members of the staff. There are no medicines dispensed, though individual members of the staff as a rule arrange with a chemist to have prescriptions dispensed at the lowest possible price to deserving poor persons. The average attendance is over 2,000 per annum.

GLASGOW SAMARITAN HOSPITAL FOR WOMEN, South Cumberland Street.—This institution was opened in 1886 for women of the poorer classes affected with serious diseases, more particularly those peculiar to their sex, unsuitable for the wards of a general infirmary. The dispensary is open

for advice on Monday, Wednesday, and Friday, at 4 P.M.; and the in-door department contains eight beds, one ward having four beds, the other beds being in separate rooms. During last year 203 patients attended the out-door department, and 90 patients were admitted to the hospital to undergo surgical operations. No infectious cases are taken in. The medical officers, who give their services gratuitously, consist of a consulting physician, two physicians, a surgeon, and an anæsthetist; and under the matron there are two nurses. It is supported by voluntary contributions; and each donor of £5 is entitled to recommend one patient yearly for admission, donors of £10 or more being entitled to recommend two patients yearly for every £10 subscribed, while annual subscribers are entitled to recommend one patient yearly for every £1, 1s. subscribed. Cases of emergency are admitted without the usual recommendation.

GLASGOW EAR INSTITUTION, 241 Buchanan Street.—This Dispensary was established in 1887 by the two acting surgeons in order (1) to afford advice and treatment in cases of ear disease and deafness among the poor, and (2) to obtain material for the study and practice of aural surgery. The average number of new patients treated monthly is 86, and each patient makes on an average four attendances. The institution, which is supported by the voluntary contributions of the patients, is open daily at two and seven o'clock; and the surgeons visit the serious cases, which occur rarely, at the patients' homes as may be required.

GLASGOW CANCER AND SKIN INSTITUTION, 409 St. Vincent Street.—This institution was established in 1887 for the special treatment of cancer and diseases of the skin. Accommodation is provided for several in-door patients, and the benefits of the institution are free to the poor, from all quarters, who suffer from these diseases. It is entirely supported by voluntary contributions, and the work is conducted by one medical officer.

C. F. P.

GLASGOW POLICE DISTRICT SURGEONS.

THERE are seven of these medical officers, one being attached to each of the following districts in which he must reside—viz., Central, Western, Eastern, Southern, Northern, St. Rollox, and Marine. The surgeon may be called on to attend injured persons in any part of the district under his care, as well as to carry out other duties in connection with his office. The number of cases seen in one year is about 7,000, including inquiry into and external examination of the body in cases of sudden death.

The duties of each of these district surgeons may be summarised as follows:—

1. To attend all prisoners in the police offices of his district requiring medical aid, and to provide all medicines and appliances necessary for treatment.

2. To attend all casualties occurring by day or night in his district requiring medical or surgical aid, and supply medicines or other requisite appliances, and particularly to visit all persons reported to him to have been assaulted or otherwise injured, whose cases become the subject of investigation by the police, and to report whether the injuries sustained are of such a dangerous nature as to render it necessary for a magistrate to be called to take the injured person's deposition, or whether, from the injuries being of a less serious nature, the accused person, if in custody, may be admitted to bail. When the life of an injured person may appear to be in danger, to give immediate notice to the superintendent or superior police officer on duty, and furnish him with a certificate to that effect, stating whether in his opinion the person is or is not in a fit state to emit a declaration.

3. To attend by day or night and supply medicines or other appliances in all cases of sudden disease, accident, or violence, occurring in the district to any of the officers or servants of the police establishment.

4. To visit from time to time all injured persons in his district whose cases are undergoing investigation, in order that he may be enabled to give full medical evidence when necessary, on the trial of the accused person.

5. To visit from time to time all insane persons who may be in the police office, with a view to their being disposed of according to law; and to grant such certificates as may be necessary for this purpose.

6. To visit all accused persons and witnesses who may be reported unable to attend Court from indisposition.

7. To make external examinations of bodies in all cases of sudden death, or of death under suspicious circumstances, and furnish in each case a written report as to the probable cause of death, so far as the same may appear from such examination and other circumstances.

8. To grant written certificates and reports in all cases occurring within the district, when such may be required by the Superintendent or Procurator Fiscal for police cases.

9. To attend in the police office of his district on the last night of the year, on Her Majesty's Birth-Day, and on any other occasion when his services are likely to be required; also to give attendance on receiving notice of any serious fire or disturbance.

10. To inspect, whenever called upon, the carcases of any animals suspected to be diseased, or any butcher meat, fish, poultry, or other articles of provision suspected to be unsound, or unwholesome, or in a state unfit for human food, and to give medical evidence in all such cases tried in the police court.

11. To inspect all adulterated provisions, confections, and other articles, when required by the superintendent, and to attend the police court, and give evidence thereon.

12. To make such examinations and reports respecting alleged nuisances as may be required.

C. F. P.

AMBULANCE ASSOCIATION.

OFFICE: 93 WEST REGENT STREET.

THE St. Andrew's Ambulance Association was originated in Glasgow in 1882, and already embraces a wide area. It has two objects.

In the first place it aims at imparting to the public such a knowledge of what is required as "First Aid" to persons injured or taken suddenly ill, that intelligent assistance may be rendered till the arrival of a medical man. For this purpose classes are formed, either connected with large works, railway companies, or the police force, or in any desired locality; and each class is conducted by a doctor, who delivers a short course of about ten lectures, including the practical training of the members in the treatment of fractures, wounds, burns, drowning, and so forth. Ladies'

classes receive instruction in sick-nursing also. To everyone passing an examination satisfactorily a certificate of proficiency is granted. The rate of admission is usually 2s. 6d., but in some cases it is more, ladies' classes, for instance, being charged 10s. 6d. The information thus acquired is, of course, limited and quite elementary; but it is complete in the sense that it is sufficient to enable any person so trained to afford such improvised help as must be given immediately or in the absence of medical attendance, to relieve suffering or prevent further mischief. The success of the movement is largely due to the interest of the public having been met by the enthusiasm of the members of the profession, who have given their services gratuitously.

The second object has to do with the transport of the injured. The members of the classes are taught the proper methods of moving patients and the use of stretchers; and stretchers and ambulance waggons of a good pattern, or wheeled litters, with other appliances necessary for the relief of the injured, are placed in suitable situations, so that assistance may be given with the least possible delay. The Glasgow waggons are at the call of any person by day or night, free of all cost within the parliamentary boundaries of Glasgow; and on the receipt of an alarm by messenger, telegraph, or telephone, they are sent with all possible speed to the scene of accident with a trained attendant. Accidents occurring outside these boundaries and within a radius of ten miles from Glasgow are also attended to, at a charge in the case of non-subscribers of 2s. per mile; and the waggons are further available for the removal of invalids, at the same rate to non-subscribers: but beyond the ten mile radius a special arrangement is required.

A few facts will give an idea of the work which has been done under the auspices of this association. During the past year, 241 classes were held in 81 localities, and 6,655 pupils were trained; the total number thus taught since the formation of the association being 19,969 in 501 classes, of whom 10,409 obtained certificates. A considerable number of towns all over Scotland have participated in this instruction, classes having been organised in them; and in several instances this has resulted in the formation of a permanent ambulance corps, to keep the members in training. There are now centres in the following places, which are mentioned in the order of their establishment:—Coatbridge, Edinburgh, Dumbarton, Pollokshaws, Baillieston,

Portobello, Annandale, Falkirk, Hamilton, North Berwick, Greenock, Ayr, Crieff, Kelso, Port-Glasgow, Dumferline, Grangemouth, Perth. In the majority of these places waggons are to be found. During last year 1,067 calls were made on the three Glasgow waggon's alone, 1,031 cases having been attended to, chiefly for removal to hospital.

The association is supported by voluntary contributions, class fees, fees for removal of invalids, and the profit on the sale of ambulance materials such as triangular bandages, handbooks, and boxes, knapsacks, or baskets with bandages, splints, and other articles for public works or households.

C. F. P.

THE SANITARY DEPARTMENT.

THE SANITARY OFFICE is at 1 Montrose Street (private entrance, 118 Ingram Street); the Vaccination Hall, 122 Ingram Street; the Reception House, 39 Weaver Street. The Office is connected by private telephone with the 13 Police Stations throughout the city, and with the Hospitals and washing-house at Belvidere, besides being on the public telephone system.

The population of Glasgow is estimated by the Registrar-General to be 526,000. The area is 6,111 acres. The city has been divided into twenty-four "statistical subdivisions," and these again have been grouped into five main districts, as nearly equal in size and population as the present divisions admit of. These subdivisions form the basis upon which the vital statistics of Glasgow are compiled by the Medical Officer, and upon which the sanitary administration of the city is built.

The work in these divisions may be divided into three parts, viz. :—

- (1.) Epidemic work, or work dealing with infectious disease, its discovery and removal.
- (2.) Nuisance work, or work dealing with offensiveness, filth, and physical defects.
- (3.) House visitation, among the poorer classes, by the female inspectors in order to inculcate cleanliness and proper habits.

These parts of the service are undertaken by eight epidemic inspectors, sixteen nuisance inspectors, and six female inspectors, under the direct superintendence of five district inspectors or foremen.

The district inspectors' duties are as follows:—

1. To confer with, report to, and receive directions from the Medical Officer and Sanitary Inspector.
2. To examine the ordinary inspectors' report books, check them, and in important cases (such as appear after smoke tests) to write out the specification of work requiring to be done for the clerks to copy.
3. To personally inspect nuisances considered important as presenting special difficulties, or on account of personal differences between landlord and tenant, or between the author and complainer.
4. Visiting, when necessary, in the routes of the ordinary and female inspectors, thus checking their returns.
5. Meeting owners on the ground in cases of proposed alterations or extensions of property, and making sketch plans of same.
6. Making correct sketches, showing the dimensions, surroundings, &c., of any thing or place in or about which a nuisance is said to exist; so that the Sanitary Inspector may be able to confer with the parties or correspond clearly on the subject.
7. Attending during progress of smoke tests, visiting each house under the operation, and inspecting for evidence of defects.
8. Attending Police and Sheriff Courts when necessary; assisting to obtain compulsory removal to the hospital; making special reports either at the request of the Medical Officer or the Sanitary Inspector, &c.

The epidemic inspectors are chosen from the detective or superior policeman class. They search for and follow up all information obtained as to existing infectious disease; seeing to removal to hospital, isolation at home, disinfection, and all other points in preventive work under the personal direction of the medical officer.

The nuisance inspectors, in a similar way, search for and take the first steps for having nuisances removed. They are usually and by preference chosen by competitive examination from the class of wrights, masons, or plumbers.

Each man makes from forty to fifty inspections daily. The districts in which they work vary in contour and size, and in the character of their inhabitants, but everything has been done to secure approximate equality of work.

For female inspectors, the endeavour is to obtain the service of ladies having sympathy and discretion, to endeavour to raise the conceptions of household cleanliness in the minds of

the very poorest housekeepers. Their work is very interesting, and is believed to be beneficial.

The in-door staff is composed of nine clerks, one draughtsman, and two boys. Three of the clerks are constantly engaged in the Epidemic Department, making up and tabulating statistics, keeping the registers, and attending to those requiring hospital services. The other clerks are attached to the Nuisance Department. A large correspondence and record-keeping is undertaken by them. They also have the public bar work to attend to where information and complaints are received from the public; the disposing of unclaimed dead, collection of moneys connected therewith, keeping of the accounts, making up the pay bills, &c.

The draughtsman relieves the district inspectors of the labour of making precise drawings of conveniences, ashpits, or any structure which the department wishes built or altered. He also undertakes special work when necessary, either for sheriff court or other purposes.

There is sufficient reference to the wash-house and house-disinfecting staff in the description of the hospitals, Belvidere. Their number varies with the work to be done.

In the Night-Visitation Department there are six inspectors. Their duties consist in the detection of over-crowding in dwellings which have been measured and ticketed under the Glasgow Police Act, and in "Houses Let in Lodgings" under the Public Health (Scotland) Act. There is also an Inspector of Common Lodging Houses. Their work is of the greatest importance to the health of the city.

There are three smoke-testers daily at work on the drains of the city.

Two food inspectors are employed to detect unwholesome and adulterated food. They also enforce the regulations made by the Local Authority, under the Privy Council's Orders anent Dairies, Cowsheds, and Milk-shops.

The Reception House is a small self-contained house in charge of a matron, with the necessary servants. The healthy members of families infected with typhus, especially, are boarded and lodged there. Clothing is also supplied until their own is purified.

The Vaccination Hall is open twice a week, and thirty to forty children are vaccinated weekly, from whom a large stock of lymph is maintained, besides supplying the profession in Glasgow freely.

The whole sanitary administration of the city is in charge

of a "Committee on Health" of the Town Council, consisting of eighteen members, with two sub-committees, one on "Cleansing" the other on "Hospitals."

The following is a synopsis of the death-rate of Glasgow for 30 years:—

Mean death-rate, 1857-66,	.	.	.	30.4
Do., 1867-76,	.	.	.	30.2
Do., 1877-86,	.	.	.	26.3
Death-rate, 1887,	.	.	.	23.0

PETER FYFE,
Sanitary Inspector.

THE CLEANSING DEPARTMENT.

THE general cleansing of Glasgow is under the charge of a special committee of the Magistrates and Council. This sub-committee on cleansing consists of one half of the members of the General Health Committee, the other half forming the sub-committee on Hospitals. The minutes of the sub-committee are reported to, and approved of by, the Health Committee before being submitted to the Council. The Cleansing Department is thus constituted a distinct branch of the Health Department. The Chief Officer—termed in the Police Act "Inspector of Cleansing"—is intrusted with the appointment and control of his whole staff, and is held responsible for their good conduct and for the general efficiency of his Department.

The total staff on the roll of the Department numbers 850, and the stud of horses numbers 180. The cartage of refuse and material of all kinds in one year amounts to 228,000 tons, or an average of 730 tons per working day.

The work of the Department embraces (1) the scavenging of all courts and back yards forming a common access to lands and heritages separately occupied; (2) the scavenging and watering of all the streets and roads within the city; (3) the collection, removal, and disposal of all night-soil, general domestic refuse, and detritus.

With regard to (1) the scavenging of courts and back yards—of which there are some 11,000—the six districts are sub-divided into 13 sections, and these again into about 200 beats; so that each section has its overseer, and each man his appointed beat, which he must regularly cleanse. The courts are, under this arrangement, scavenged once,

twice, or even thrice a day, according to the requirements of the respective localities.

With regard to (2) the sweeping of the streets, of which there are 181 miles within the city, the greater part of the work is accomplished during the night, between 11 P.M. and 8 A.M., by 23 horse-drawn sweeping machines. All the principal streets are traversed by these machines every night, and carts follow them as closely as possible to remove the sweepings. During the day men and boys work upon fixed beats or stations, brushing the channels and picking up droppings, paper, &c. The material thus picked up, during the day, is deposited in specially designed bins which are sunk level with the pavements at intervals of about 40 yards, so that the necessity for having unsightly heaps of droppings, &c., lying on the streets during the day is done away with.

The most difficult part of the duties of the City Cleansing Department, as well as the most important from a health point of view, is (3) the domestic refuse and night-soil collection and disposal. In the collection and removal of the general house refuse, there are two systems in operation within the city. There is, firstly, the daily morning dust cart system; and, secondly, the ashbin or ashpit system. The former is in operation chiefly in the central district of the city, where the buildings are principally occupied as shops, offices, and warehouses. Each dust cart—a specially designed float with cranked axle and arched cover—has its appointed route, which it begins to traverse at 8 o'clock every morning. An hour is generally occupied in emptying the long series of buckets on the route, so that at 9 o'clock all the empty buckets can be taken in by the occupiers. The uniform covered buckets, specially contracted for, and supplied by the department at cost price, are a great improvement in working this system. This daily system suits very well where it is applied, and for districts of self-contained dwelling-houses. For the flatted tenements of Glasgow, however, in which 25 per cent of the population live in single-apartment houses, and 45 per cent in two-apartment houses, the system is unsuitable. For these it is considered necessary to have an improved ashbin in the back court, into which refuse, excrementitious or otherwise, can be thrown at any hour of the day, rather than have it kept in the house until the morning dust cart comes round. Consequently the great bulk of the domestic refuse in Glasgow is collected from fixed ashbins in the back courts. For the emptying of these there is, as already said, a separate organisation. The work is all

done during the night between 11 P.M. and 9 A.M. In the central district the bins are emptied twice a week, and in the other districts once a week. This is simply arranged by mapping out each district into six sections or blocks—one for each working night of the week. Following the ashpit cleaners, comes a staff of hosewashers, who scour the dirty courts and closes.

The old system of privy and ashpit combined has now been almost entirely abolished in Glasgow. Water closets have been very largely adopted, and their number is increasing year by year, so that the excrementitious matter falling to be dealt with by the department is becoming gradually less. A considerable quantity still remains, however, and is systematically collected from pail closets in connection with dwelling houses in the poorer localities, as also at factories, workshops, mills, &c. Patent spring covers are placed upon the pails, and they are removed in covered vans, a clean pail being put down in exchange at each removal.

To get the whole refuse of the city ultimately disposed of promptly, and in accordance with sanitary principles, has been the chief difficulty experienced by the Cleansing Department. The natural destination of manurial refuse is the land where it becomes the food of plants. Scotch farmers, as a rule, prefer bulk manure to chemical manures. That being so, we have endeavoured to place within the reach of as many of them as possible all that is manurial in our city refuse. The result is that we supply city manure to 2,400 farmers whose holdings are scattered over fifteen different counties. To prepare this manure and get rid of the non-manurial rubbish at the same time, Refuse Despatch Works have been erected at St. Rollox on the north, and Tradeston on the south side of the river. Thither the ashpit refuse, night soil, and street sweepings are separately carted, and summarily disposed of by machinery specially designed and adapted for the purpose. The night soil is emptied from the pails into sealed tanks. The street sweepings, when sloppy—as in our climate they very often are—are run into draining tanks of novel construction. The general ashpit refuse is tipped down a shoot into a double acting revolving screen. The finer portion passes through the meshes of the screen into a mixing machine along with a mechanically regulated quantity of excreta from the soil tanks. The street sweepings, when dry, are screened along with the other refuse. The sloppy sweepings, when drained, are drawn from the draining tanks, and can be either dropped into the mixing machine or into the railway waggon

direct. The mixed compost—in a great measure deodorised and free from all hard rubbish—is delivered from the machine right into railway waggons, and despatched forthwith to the country. The double-acting screen referred to delivers at its one end cinders in sufficient quantity to raise steam for all the requirements of the works. At its other end it delivers upon a carrier which shoots into the cremating furnaces all the rougher rubbish. A person stationed at this carrier picks off and drops down the manure shoot anything fit for manure. Meat tins are picked off and sent to the solder extracting furnace; old iron and everything saleable being turned to account. The cremating furnaces which swallow up all the rougher rubbish have been, like all the other machinery and apparatus in the works, designed in the office of the Department. The material is dropped right into the centre of the fire. The furnaces have large fire grate area, and wide flues connecting with a 240 ft. chimney. A large fan, capable of passing 29,000 cubic feet of air per minute, exhausts from the soil and mixing rooms, and blows the vitiated air through large pipes into the chambers under the bars of the cremating furnaces. This arrangement serves the double purpose of satisfactorily disposing of the foul air, and at the same time creating a blast for the furnaces. The clinkers drawn from the furnaces go to make up ground.

The only material not yet referred to is the scrapings of the Macadamised roads. These are shot into waggons at the works, and conveyed to the farm of the Department at Fulwood Moss, ten miles distant. Nine years ago the Magistrates and Council entered on a 31 years' improvement lease of this farm, which extends to close upon 100 acres. At that time it was a useless heather bog, but it has now been thoroughly reclaimed, and with the application of the road scrapings yields magnificent crops. A considerable part of the work of reclamation was done by the "unemployed" in the first months of 1879.

At the Despatch Works and other yards of the Department suitable lavatories and baths, as also mess rooms, with the necessary cooking and heating conveniences, have been provided for the workmen, so that both their outer and inner man may experience in some degree the comforts of civilisation. Their work is necessarily of a dirty and disagreeable nature, and it is only right that they should be encouraged by little attentions of this kind. The creditable appearance they make at their winter soiree and summer trip to the farm shows that any efforts made in this direction are appreciated.

In the manner above described, the removal of the refuse of the city goes systematically on during each night, and by 10 o'clock in the morning it has practically all been disposed of.

JOHN YOUNG,
Inspector of Cleansing.

CONVALESCENT HOMES AND HOMES FOR INCURABLES.

GLASGOW CONVALESCENT HOME, LENZIE. *Office:* 183 West George Street, Glasgow.—The “Glasgow Convalescent Home,” instituted in 1865, is situated at Lenzie, a few miles to the north of Glasgow, and has accommodation for 67 patients, of whom 30 are taken from the Glasgow Royal Infirmary, 10 from the Western Infirmary, and 27 from the general public, the subscribers having the privilege of recommending the latter cases. The ordinary expenditure is about £1,700 a year, and between 1,400 and 1,500 persons are admitted annually. There are two visiting medical officers.

Patients from the Royal or Western Infirmary must procure a certificate signed by one of the physicians or surgeons, and countersigned by the superintendent of the Infirmary. Patients from the general public must procure a line of recommendation from a contributor or annual subscriber; and this line is presented by the patient to the collector of the home, who countersigns it; the patient then delivers the line to the examining medical officer, who examines the applicant, and, if satisfied, delivers to him a certificate, which the patient presents to the matron on being admitted to the home.

All contributors of £10 or more, and all annual subscribers of £1, 1s. or more, are entitled to recommend one patient for every £10 of contribution or £1, 1s. of annual subscription. Public works rank as ordinary subscribers, and are entitled to send one patient annually for every £1, 1s. of annual subscription. Societies and Church congregations subscribing annually are entitled to send two patients for every £3, 3s. of annual subscription. Non-subscribers may get patients admitted on payment of £2, 2s. for each patient. No patients are admitted into the home unless they are in poor circumstances, and considered unable to pay for themselves; and the following cases are not received:—(1) Persons labouring under any acute disease which requires active

medical treatment. (2) Persons labouring under or recovering from any contagious disease. (3) Persons labouring under any incurable disease, unless they are likely to benefit from a short residence in the home. (4) Persons who are in a helpless condition. (5) Persons who are not really in a convalescent state; and (6) Persons subject to epileptic or other fits, or who are of unsound mind.

Under ordinary circumstances, the period of the patient's residence is limited to three weeks, though it is in the power of the Visiting Medical Officer to order the period to be restricted or prolonged; but in no case is the time of residence prolonged beyond six weeks in one year, unless specially authorised by the directors.

MISSION COAST HOME, SALTCOATS.—This convalescent home was started in 1866 by Messrs. James Smith, a missionary in Glasgow, and William Bryden, of Saltcoats. They rented a room and kitchen in Saltcoats, and here poor persons in feeble health were received from the closes and wynds of Glasgow. It has grown to be a large institution with 70 beds, and the requisite accommodation of other kinds for the inmates. A medical adviser visits the home. During 1887 the number of persons admitted was 1,115; and the income, which is derived from voluntary contributions, amounted to £1,462, the expenditure being £1,105. The average length of stay is from two to three weeks. Applicants are admitted free if found really necessitous and deserving, those being taken first from the list who are recommended by subscribers, and afterwards those who are recommended by any well known or respectable person.

KILMUN SEA-SIDE HOME. *Office: 134 Wellington Street, Glasgow.*—The "Kilmun Convalescent Home for the Poor" was instituted by the Glasgow Abstainers' Union in 1867. The female missionaries of the Union, in the course of their visits at the homes of the poor, met with many industrious poor people who were utterly unable temporarily to help themselves by reason of infirm health, while all that was needed for recovery or improvement was nourishing food, with fresh air. The idea of the home was thus suggested, and an experiment on a limited scale was attempted, and proved successful. In 1873 the present home at Kilmun, on the Firth of Clyde, was built, with accommodation for 100 patients, and between 1,000 and 1,100 patients annually receive its benefits, poverty and infirmity being the sole

qualifications for admission, "subscribers' lines" not being required. While the home is entirely supported by voluntary subscriptions, these subscriptions carry with them no legal claim, being given in the interests of the poor generally, and not on behalf of any prospective individual cases. This leaves the management free to select applicants exclusively on their merits; and preference is given to young and useful lives, and especially to such as are bread-winners, or mothers with young families dependent on their care. Nourishing diet, fresh air, and pleasant surroundings for a week or two are the only restoratives provided—as cases requiring medical treatment are not eligible—though a doctor visits the home at regular intervals to see that everything is going right. The building and furnishings cost about £3,000, and the home was opened free of debt. Five years ago about £700 was spent on alterations and additional conveniences. About £1,200 is annually required for maintenance, management, and upkeep; and it has never suffered for lack of funds. The applicants are required to fill up a schedule, showing their circumstances, and embodying a certificate from a doctor testifying to their ailment, and to their freedom from infectious disease or open sores.

WEST OF SCOTLAND CONVALESCENT SEA-SIDE HOMES, DUNOON. *Office:* 58 George Square, Glasgow.—These homes, instituted in 1869 by Miss Beatrice Clugston, of Glasgow, and a number of gentlemen co-operating with her, are designed for the deserving poor of the industrial classes, for the purpose of affording sea air, bathing, and repose, with ample and excellent nourishment, to invalids, whose circumstances—after confinement in the wards of infirmaries and hospitals, or in the oftentimes prejudicial atmosphere of their own homes—prevent them from regaining, in any other way, the health and strength necessary to resume work. They are situated at Dunoon, on the Firth of Clyde, and there is accommodation for 160 persons. About 3,200 persons are admitted annually, and the yearly expenditure is £5,000, the institution being supported entirely by voluntary contributions. There is one visiting medical officer.

No person is admitted to the homes, unless it can be shown that disease has been so far arrested by previous treatment as to justify a reasonable belief that health will be established or decidedly improved by change of air and residence at the sea-side.

Only the necessitous are admitted; and admission is

obtained through lines of recommendation from donors and annual subscribers. The line of recommendation should be *personally* presented by the convalescent to the medical examining officer, 58 George Square, Glasgow; and, when passed, the applicant lodges the medical certificate and subscriber's line at the office, in order to be booked by the Secretary, who gives the document which procures admission.

For country cases, the line of recommendation should be sent to the Secretary, along with a certificate from the medical attendant of the applicant, giving the name, age, occupation, residence, and nature of the affection under which the person applying has suffered. These documents having been submitted to the medical examining officer, his views and decision are communicated in due course; and, if eligible, a certificate of admission is forwarded, provided there be room in the homes.

The following cases are ineligible:—1. Persons who are helpless, and requiring active medical treatment. 2. Those afflicted with advanced pulmonary consumption, and who are deemed, from that or any other disease, to be incurable. 3. Persons having ulcers, attended with copious or offensive discharges. 4. Convalescents from eruptive or other fevers of an infectious nature, so long as they are deemed capable of communicating infection. 5. All persons subject to epileptic or other fits, or who are of unsound mind. 6. Persons of immoral character, or of intemperate habits.

The time of residence in the homes is limited to two weeks, from 1st May till 31st August; and three weeks' stay, from 1st September till 30th April, in the case of a line from a subscriber of £1 annually; but it may be extended, by the presentation of an additional line from a subscriber of £2 and upwards yearly.

Every subscriber of £1 annually, or donor of £10 in one sum, has the privilege of recommending one person yearly for admission to the homes, and of an additional recommendation for every additional subscription of £1 or donation of £10.

Congregations, public works, friendly societies, and other united bodies, are entitled to recommend one convalescent for every £1 of annual subscription.

A payment of £1 may be accepted—(*but only during December and January*)—from convalescents desiring to be admitted on their own account, and from convalescents sent by those who are non-subscribers.

COTTAGE HOME FOR CONVALESCENT CHILDREN, 10 Glasgow Street, Helensburgh.—This home was started by Mrs. Colville, of Helensburgh, in 1884; and is maintained by voluntary donations and subscriptions. It is intended to provide a few weeks' residence at the sea coast for poor town children, whose health is likely to be benefited by such a change, and who are not reached by the large convalescent homes, the special feature of this institution being that cases with open wounds, requiring only simple dressings, are admitted. The matron is a trained hospital nurse, and there are ten cots. During last year 149 children were received, and the average length of stay was three weeks. No lines are required; but preference is given to cases recommended by subscribers. Boys between four and ten years, and girls between four and twelve years are eligible; and the suitability of applicants is determined on examination by the medical officer, Dr. Fleming, at his residence, 155 Bath Street, Glasgow.

EAST-PARK HOME FOR INFIRM CHILDREN, 340 Gairbraid Street, Maryhill Road.—This was instituted in 1874, the need for a home of the kind having been felt after the School Board had completed its first census of the children of school age in Glasgow. Many children, belonging to the poorest class, who had none of the comforts, and few even of the necessaries, of life, were discovered suffering from chronic ailments and deformities, for which no existing institution could properly provide. It was opened for 30 cases, but in 1882, an addition having been made, the number of beds was increased to 50; and now, in 1888, as the applications for admission have become so numerous, a further extension is being built, increasing the beds to 80—40 for boys and 40 for girls.

All cases brought under the notice of the management are visited by the doctor, and those found suitable are placed upon the applicants' roll. When vacancies occur, the more urgent cases are admitted; and the period of residence varies from a few weeks to several years, there being, of course, varying degrees of infirmity, from the children whose cases seem physically hopeless to those who may be restored to moderate health in a few months. The medical officer visits the Home regularly. There is a lady superintendent with a staff of nurses, and a lady teacher gives such instruction as the age and health of the children permit. The institution is supported entirely by voluntary contributions.

ASSOCIATION FOR THE RELIEF OF INCURABLES FOR GLASGOW AND THE WEST OF SCOTLAND. *Office*: 119 St. Vincent Street, Glasgow.—This Association was formed in 1875 by Miss Beatrice Clugston, of Glasgow, along with a number of gentlemen. In that year a bazaar was held in the Kibble Crystal Palace, Botanic Gardens, which realised £14,000, a sum which, before the end of the year, was increased by donations to £24,000. At the outset assistance was given to incurably afflicted persons in their own homes; but with £14,000 of the above sum the estate of Broomhill, Kirkintilloch, about 7 miles to the north-east of Glasgow, was purchased, and the large mansion-house in the attractive grounds, which extended to about 80 acres, was altered and adapted for the purposes of a "home," and opened in 1876 with accommodation for 62 beds. A new wing was built at a cost of £8,000, and opened in 1884; and, altogether, the Home can now accommodate 115 patients, besides matron, 12 nurses, 9 servants, and a male attendant. At the beginning of this year there were 109 inmates, a large number of them being sufferers from paralysis, but including also persons affected with cardiac, brain, and spinal disease, chronic rheumatism, phthisis, scrofula, cancer, epilepsy, general debility, and congenital deformities. The cost per head is about 5s. a week, and the ages vary from childhood to old age. Since it was opened in 1876, 300 cases have been admitted. There are two visiting medical officers, and the annual expenditure is about £3,000.

The object of the institution is the gratuitous relief of deserving persons, not paupers, who have been rendered helpless by disease. Those who are friendless, or who require nursing and medical treatment such as can only be obtained in a public institution, are admitted to the establishment at Broomhill, where, for the remainder of their lives, they have all the comforts of a home. Their religious wants, and the education and training of the young receive careful attention. Applicants are admitted at the discretion of the Directors, if found suitable, after examination by the medical examining officer.

On the recommendation of the out-door relief committee, persons who appear to be incurably afflicted, but who prefer to remain in their own homes, obtain pecuniary assistance; and there are about 190 such out-door patients, who receive monthly pensions ranging from 6s. to 20s. Since 1876, 669 persons have been relieved in this way, and those in Glasgow who require medical attendance are visited by the senior

students in connection with Anderson's College Dispensary, an arrangement which has been carried on since 1879. The amount thus disbursed is about £1,000 per annum, and is distributed by ladies.

The association is supported by voluntary subscriptions and donations, and to some extent by contributions towards the board of in-patients either by themselves or their friends. A Ladies' Auxiliary, started in 1884, also raises over £1,000 a year, chiefly in small sums.

COLQUHOUN BEQUEST FOR INCURABLES. *Office:* 95 Wellington Street, Glasgow.—This trust was formed in 1874 on the death of Mr. Archibald Colquhoun, of Riddrie Park, its object being the application of the free income of the trust in the relief of poor persons, residing in Glasgow or its immediate neighbourhood, who are afflicted with incurable disease, and so destitute and helpless as to be proper objects of charity. A sum of £20,000 was left for this purpose, and the capital of the trust now amounts to £22,000. The income of the fund is distributed monthly, by 15 lady visitors, to the patients in their own homes; and the total cost of administration is only a little over 2 per cent on the amount distributed. There are 118 persons—40 males and 78 females—in receipt of grants, which range as follows:—5 at 21s. 8d. per month, 101 at 10s. 10d., and 12 at 5s. 5d.; in all, £63, 7s. 6d. per month. Admission to the benefit of the fund is made on the recommendation of any one after the case has been carefully inquired into by the trustees. The roll is usually full for two years in advance, and at present there are from 70 to 80 applicants thus waiting for admission.

C. F. P.

INSTITUTIONS FOR THE BLIND AND THE DEAF AND DUMB.

GLASGOW ASYLUM FOR THE BLIND, Castle Street.—In the year 1806, John Leitch, of Glasgow, who suffered during the later part of his life from partial blindness, bequeathed the sum of £5,000 to form the nucleus of a fund for establishing an institution for the benefit of blind persons in Glasgow. The citizens supplemented that sum, and an Act of Parliament incorporating the institution was passed in 1825. Suitable

grounds and premises were secured on the present site, and in 1827 the Asylum was started.

It was divided into two departments:—(1) A school of instruction for the young, who were lodged in the house; and (2) a school of industry for adults, who were taught a trade, and were afterwards employed in the workshops of the institution. In 1828 eight blind persons were received into the institution, and employed at the manufacture of door-mats, baskets, mattresses, twine, tinned-boxes, and knitting. The sales for that year amounted to £231.

At the present time, nearly 200 blind persons are educated, maintained, and employed in making baskets, brushes, mattresses of all kinds, hassocks, door-mats, cork fenders for ships, nets, sacks, twine, and in spinning, wire-working, knitting, bundling firewood, &c. The sales now amount to nearly £16,000 per annum. The lines originally laid down are adhered to; and the young not only receive a sound elementary education, aided with all the modern appliances for teaching the blind, but are also taught a trade, whereby they may be able to assist in maintaining themselves. The charge for board, lodging, and education is £12, 12s. a year, and no boy or girl is admitted who is under seven or above fourteen years of age. The period of education is three years, but those who conduct themselves satisfactorily may be allowed to remain longer. Blind children and adults, not inmates, are taught to read on payment of a moderate fee; but, if unable to pay, and properly recommended, they are taught gratuitously. Adults, when openings occur in the workshops, are admitted free of charge, taught a trade, and paid for work done at the regular trade rates. They do not reside in the house, but come to their work daily. Of the non-resident persons receiving the benefits of the institution during 1887, there were 96 men and 16 women employed in the manufacturing department, and 5 children attending the school, while those resident in the Asylum comprised 14 women, 14 girls, and 16 boys. As the board paid for the young is quite inadequate to cover expenses, and the wages paid to the workers are in excess of the amount realised by the sale of their work, these deficiencies and the cost of maintaining the institution are met by public subscriptions, donations, and bequests. During last year, the Asylum provided employment for 129 blind persons, who earned the sum of £2,560 as wages; but in addition to this there was allowed to them the sum of £1,087 as supplement to wages, sick, holiday, and coal allowance, and special grants, the

greater number of the recipients being unable to earn sufficient for the support of themselves and those dependent upon them. The ordinary expenditure for the year was £3,478.

About two years ago a disastrous fire destroyed the greater part of the workshops. The new buildings are now nearly completed, and present a handsome appearance, being also much better adapted for workshops than the old ones. A shop for the sale of the articles made in the Asylum is situated at 82 and 84 Renfield Street.

GLASGOW MISSION TO THE OUT-DOOR BLIND. *Office:* 4 Bath Street.—The mission to the out-door blind for Glasgow and West of Scotland, which was originated in 1860, is a benevolent society supported by voluntary contributions, and has under its care about 1,250 blind persons. These are sought out, visited regularly at their own homes, taught to read in embossed types, when they desire such instruction, and provided with books on loan, free of charge. There is a well-selected library, containing 2,433 volumes, of which 1,945 are in Moon type, 460 in Braille type, and 28 in Alston type. Means are also used to provide suitable employment for such as are able to work; and assistance is afforded in grants or loans, to enable the recipient to start some simple trade on his own account; or direct aid is given when necessary. In addition to the superintendent, seven missionary teachers are employed; and a ladies' auxiliary, which employs two female teachers, devotes special attention to blind females, visiting them, supplying material for knitting, and disposing of the work. The society encourages the education of blind children in the common public schools along with those who can see; and it has 26 children on its roll, who are all doing well at such schools.

GLASGOW INSTITUTION FOR THE DEAF AND DUMB, Queen's Park.—The Glasgow Society for the Education of the Deaf and Dumb was formed in 1819, and incorporated in the same year by a "seal of cause" from the magistrates of the city. Before that date, the only school in Scotland where children so afflicted could receive their education was in Edinburgh; but, a committee having been formed, subscriptions to the extent of £2,000 were obtained; a piece of ground in the Barony Glebe, then an airy and agreeable situation, was procured; and commodious buildings provided, together with a large playground and garden.

In 1866, there were 90 pupils; and the institution, by that time, had afforded instruction to 580 children, almost all of whom afterwards maintained themselves by their own exertions. It was then found desirable, however, to have a larger house in a more healthful locality. Two large additions had been made to the original building; but its capacity was becoming every year more inadequate to the number of applicants for admission, its accommodation was deficient, and the situation had become unsuitable.

A new site was secured at Prospect Bank, Queen's Park, overlooking the spot on which the battle of Langside was fought in 1568, and there a handsome edifice was erected, after the plans of Mr. James Salmond, with funds gathered by public subscription. It is a boarding school, with class rooms, dormitories, sitting and dining rooms, playgrounds, gymnasium, and all necessary accommodation for 170 pupils and the official staff.

The charge for board and education is £10 per annum. No boy or girl is admitted before seven years of age or after fourteen, and the applicants must be deaf, of good intellect, and free from infectious disease. When parents are unable to bear the expense, and it cannot be obtained otherwise, the committee admit children gratuitously; and, where a part only of the expense can be borne by the parents or friends, pupils are admitted at reduced rates. A very considerable reduction is thus allowed to the respectable poor; but parochial boards are expected to contribute the full charge. About one-fifth of the children are admitted gratuitously.

The pupils can receive a complete elementary education, and the girls are also taught household duties and needle-work. The teaching staff consists of the head master and eight assistant teachers, each of whom has, on an average, about fifteen children in charge. The method of instruction embraces all that is practical in both the German and French systems, lip reading and the sign language being employed. The full curriculum occupies eight years; but the average length of residence is only four years, which is too short to enable the deaf to receive the instruction necessary to enable them to compete with hearing people. An endeavour is made to secure employment in various trades for the pupils, when their education is finished; and some admirable workmen in various occupations in the city were educated in this school. Altogether there have been educated in it 1,089 children. Last year the number of pupils was 143, and the expenditure amounted to £3,900. The income is derived from the charges

for board and education, public subscriptions, donations, and bequests, and the interest on investments.

GLASGOW MISSION TO THE DEAF AND DUMB. *Hall:* 65 Renfrew Street.—This is a Society, established in 1822, the aim of which is to help the adult deaf and dumb of Glasgow and neighbourhood in various ways. The hall is open for religious services in the “Finger and Sign Language” on Sunday, and has a reading-room with lending library attached, and for other purposes during the evening throughout the week. Two courses of lectures are delivered during the year; and, when the lecturers are not deaf and dumb, the addresses are interpreted by the missionary employed by the Society. When necessary, the persons on the roll are visited at their own homes, and temporary relief is granted in cases found to be really deserving. Others are assisted in obtaining employment. To be deaf and dumb entitles any applicant to the aid of the Society. There is a Temperance Society in connection with the mission; and the services of an interpreter are available for any one, being usually called for on such occasions as marriages, baptisms, funerals, and court cases. The Society is supported by voluntary contributions.

C. F. P.

INSTITUTIONS FOR THE TRAINING OF NURSES.

GLASGOW TRAINING HOME FOR NURSES, 250 Renfrew Street.—This institution was founded by Miss M'Alpin, of Glasgow, along with a committee of ladies and gentlemen. Its objects are—(1) To train women of high character for the work of nursing the sick, and to employ them in the Home or in private families; (2) to provide premises for the staff, and also for the purposes of a private hospital. In 1874, temporary premises were opened at 98 St. George's Road, and there the work of the institution was conducted till 1880. To afford the requisite practical experience, a few patients were received into the home, some of whom were gratuitously nursed, while others were admitted at a very low charge. By and bye, as the number of nurses increased and the nature of the institution became better known, there was less difficulty in obtaining patients who were both able and willing to pay for the benefits conferred; and ultimately the directors were forced to consider the

propriety of making arrangements for providing private apartments for young men and women living in lodgings who might be overtaken with illness; for persons who, when laid aside with sickness, might not have the advantage of relatives to look after their household affairs; and for patients from the country who might wish to be for a time under the care of a city physician or surgeon. Three rooms were set apart for the reception of patients, who, on payment of a graduated scale of charges, could be nursed in the institution, and be visited either by the doctors in attendance or by their own medical advisers, thus accommodating 15 patients in the private rooms and general wards, 10 nurses, and the lady superintendent and an assistant.

In 1878 the directors purchased, at a cost of £3,500, a property situated at 250 Renfrew Street; and the premises, when opened in 1880, provided suitable accommodation for the ladies in charge and for 20 nurses, 7 rooms for private patients, 2 wards with beds for 10 patients, a waiting room, an operating room, and other necessary conveniences. The alterations and extensions cost about £3,200. The adjoining property was acquired in 1883, at the price of £2,200; and the new part opened in 1884, the alterations and additions involving an outlay of about £1,400.

The institution now contains accommodation for 33 nurses, 10 rooms for private patients, 1 female ward for 5 adult patients and a child's crib, and 1 male ward for 4 adult patients and a child's crib.

Persons suffering from infectious disorders are not admitted into the home, but other patients can receive board, lodging, and nursing in the general wards on payment of from 7s. 6d. to 10s. per week, or in private rooms on payment of from £2, 2s. to £3, 3s. per week. They may be attended by their own medical adviser, whose fees are a separate charge, of which the directors take no cognisance; but, when patients have no doctor of their own, they are under the care of the two visiting medical officers of the institution, who give their services gratuitously, and the above rates include this medical attendance.

The charge for a nurse in ordinary medical cases in private families is £1, 5s. per week, in addition to board, lodging, washing, and travelling expenses. For surgical, midwifery, and infectious cases the charge is £1, 10s. per week, and in the last class an additional sum of £1, 1s. is charged to provide the nurse with a lodgings for a short time before returning to the institution.

No applicant under five-and-twenty or over forty years of age is admitted into the institution for the purpose of being trained as a nurse, and each applicant received remains for one month on trial. If found suitable, she becomes bound to remain in the institution for a period of three years and a-half from the date of her entering it, undergoing the training necessary to qualify her as a nurse. During the first six months she receives board, lodging, and washing, but no wages. On the expiry of that period, and during the ensuing three years, she, in addition to board, lodging, and washing, receives an allowance at the rate of not less than £14 for the first year, £17 for the second year, and £20 for the last year of her engagement. Each nurse resides in the institution when not engaged in private families. Of 288 applicants since the institution was started, 167 proved unsuitable on probation, and 121 have been trained in the home in ordinary medical and surgical cases, and as ladies' nurses. They are not sent out to private families till they have served for one year in the home; and, out of a staff of 72, 54 are so qualified.

Until last year the institution was partially supported by public subscriptions and donations, but now money received from such sources is carried to the building fund to reduce the debt, the fees received from private and in-door patients meeting the expenditure. In 1887, with a staff of 55 trained nurses, 448 cases in private families were attended, from which a sum of nearly £3,100 was received; and 216 cases were admitted, from which a sum of £900 was received.

GLASGOW SICK POOR AND PRIVATE NURSING ASSOCIATION.
Home: 220 Sauchiehall Street.—The objects of this Association are:—

1. To provide trained and experienced women of high character to attend the sick poor in their own homes, and midwifery nurses to attend the very poor gratuitously, and the working classes at a moderate fee.
2. To provide thoroughly qualified nurses for private families who are able to pay for their services.
3. To improve the moral and professional qualifications of nurses for the sick among the poor and in private families, by providing them with training in the wards of an hospital, with the regulations and comforts of a home in charge of a lady superintendent.

The work of the institution was originated by the superintendent-general, Mrs. James S. Higginbotham, about

the year 1875, and was at first carried on by her with the financial help of a few personal friends, the staff then consisting of one nurse and one probationer. The staff is now composed of nurses trained at other institutions, and also probationers of this Association trained at the Glasgow Royal Infirmary, the City of Glasgow Fever Hospital, and elsewhere ; and it consists of 70 nurses, including trained nurses, probationers, and assistants. At the close of last year there were 64 trained nurses and probationers ; and of these 14 were district nurses, 6 midwives, 35 private nurses, and 9 probationers, these last being in training for six months at the Royal Infirmary, and a similar period at the Fever Hospital. In addition there were 8 assistant nurses, constantly employed as night nurses to the sick poor, where the cases required continuous attention.

The salary of the nurses commences at the rate of £25 per annum, rising £1 per annum to £40, with board, lodging, and uniform. The probationers receive £10 for the first year, with a gift of £3 at the end of the year should they bring good recommendations from the hospitals where they have been trained ; and during the second and third years they receive £20, after which they receive £25, rising £1 per annum to £40. They also receive a certificate from the Association.

The number of cases treated during last year was 1,477 in the district work and 431 in private families. The terms for private nursing are £1, 10s. per week for ordinary cases, and £2, 2s. per week for midwifery cases ; £1 is charged in fever cases for a nurse's disinfecting fee.

The ordinary revenue for the year ending October, 1887, was £3,488, and of this the sum of £2,667 was derived from nursing fees. Public subscriptions amounted to £798, and donations to the extent of £1,276, in response to a special appeal, along with legacies, brought up the total income to £5,142.

The work among the poor is distributed over fourteen districts ; and the nurses, who live in the home of the Association, are engaged on their districts from 10 A.M. till 5 P.M., during which time a very large number of visits are made. The nurse carries a basket containing dressings, lotions, and other articles required for her work ; and, in addition to the actual attention which the patient receives, the Association frequently supplies, in cases of great destitution, food, clothing, and lines for admission to the infirmaries or convalescent homes. Persons desiring the aid of the

Association can obtain it by applying at the home from 9 to 11 A.M., when arrangements are made for the nurse of the district to call; poverty and physical suffering are the only qualifications necessary to command the assistance of the Association. Notes are kept of all the cases visited; and, when necessary, medical aid is supplied gratuitously by members of the profession, who have always shown the greatest willingness to assist the nurses. Another part of the district work is carried on by the midwives, who are at the service of the poor at all hours of the day or night; they are trained at the Glasgow Lying-in Hospital.

C. F. P.

MEDICAL SOCIETIES.

GLASGOW MEDICO-CHIRURGICAL SOCIETY.—This society was started in 1844, and its objects are to receive communications on medicine, surgery, and the collateral sciences; to converse on medical topics; and to promote professional improvement by any means that may from time to time be approved of. It originally met in the hall of the Faculty of Physicians and Surgeons, which was then in St. Enoch's Square; and when this was changed to St. Vincent Street, in 1862, the society migrated thither also. The members were admitted by ballot, and an annual contribution of 5s. was payable, attendance at the meetings and the reading of papers being entirely voluntary and there being no fines. The meetings were held on the second Tuesday of each month, commencing in March and ending in October.

By mutual agreement, in 1866, it was amalgamated with the older "Glasgow Medical Society." This society had been instituted in 1814, and during the first eighteen months of its existence the members met on the first and third Tuesday of each month; but after that time the meetings were held on the same days throughout the winter session only, commencing in October and ending in May. The place of meeting was the hall of the Faculty of Physicians and Surgeons, and this privilege was accorded by the Faculty throughout the entire period of the existence of the society. The members were elected by ballot, and paid an entrance fee of one guinea, which constituted life membership. From the commencement, a rigorous system of fines was enforced, with a view to secure regular and punctual attendance at the meetings, the reading of essays or written communica-

tions by the members in rotation, funds for necessary expenses, and a strict observance of all the rules of the society; and this system was continued till the year 1846, when fines, compulsory attendance, and compulsory reading of papers were abolished; and the funds of the society were provided by a payment of 5s. as entry money, and a contribution of 5s. each succeeding session. During an early period of the history of this society, lists of the deaths in Glasgow and a register of the weather, during the three preceding months, were presented at a quarterly meeting by a committee specially appointed for the purpose; and at this meeting the prevailing diseases were discussed. This arrangement, however, was soon changed, and the meeting on the first Tuesday of each month was reserved for the consideration of the papers read by the members in rotation, the meeting on the third Tuesday being reserved for "professional conversation"—i. e., discussions of the prevailing diseases, of interesting cases, and of other professional topics brought forward without previous announcement.

In 1886 four sections were formed—viz., Medicine, Surgery, Midwifery and Gynaecology, and Pathology; and some changes were made in the constitution of the Society. The rules regarding membership remain as above, and the ordinary meetings are held at 8:30 P.M. on the first Friday of each month, commencing in October and ending in May, extra meetings being held on other Fridays as often as it is considered advisable. Reports of the proceedings are published in the *Glasgow Medical Journal* and elsewhere.

There are 245 ordinary and 8 corresponding members, admission being by ballot; and during last session (1887-88) there were 70 contributions, including papers, cases, pathological preparations, and microscopical demonstrations, given by 39 members. Of these contributions 14 were in the section for medicine, 23 in that for surgery, 28 in that for pathology, and 5 in that for obstetrics. Twenty-five meetings were held, and a very successful conversazione took place.

GLASGOW SOUTHERN MEDICAL SOCIETY.—This Society, instituted in 1844, had its origin in that part of the city which lies on the south side of the River Clyde, but its membership is open, subject to ballot, to all qualified practitioners residing in or near Glasgow. The meetings, which are held every alternate Thursday, from October to May

inclusive, at 8.30 P.M., in the rooms of the Society, 11 Bridge Street, are devoted to the reading and discussion of papers, exhibition of specimens, and professional conversations, reports of the transactions being published from time to time in the *Glasgow Medical Journal* and other periodicals. The annual contribution is five shillings. The Society endeavours to maintain the rights of its members and of the profession generally, and in 1853 adopted the "Code of Ethics" of the American Medical Association, which it has republished together with a tariff of fees. Its membership numbers 153; and during last session there were 17 meetings, including an annual dinner and a picnic. The number of communications was 21, brought forward by 16 contributors.

GLASGOW PATHOLOGICAL AND CLINICAL SOCIETY.—This Society was started as a Pathological Society in 1873, the aim being to have a limited number of working members meeting for the exhibition and study of patients, preparations, drawings, and instruments. It met at first in the Lying-in Hospital, 112 Wellington Street; but at the beginning of the second session, at which period a clinical element was introduced or more distinctly recognised, the Society assumed its present name, and the place of meeting was changed to the Eye Infirmary, Berkeley Street. At the beginning of the fourth session there was a further removal to the hall of the Faculty of Physicians and Surgeons, St. Vincent Street, where the meetings have since been held. From the outset it was arranged that adequate reports of the proceedings would be published, and insertion of them was obtained in the *Glasgow Medical Journal* and the *British Medical Journal*. Originally the membership was limited to 30, and a fine of 5s. was exacted from any member who was absent from three consecutive meetings; but fines are now abolished, and the number of members is increased to 40. New members are admitted by ballot as vacancies occur, and are required to produce some communication before nomination. The regular meetings are held at 8 P.M. on the second Tuesday of each month from October to May, inclusive. During last session there were nine meetings, at which 16 contributors brought forward 47 communications, including papers, patients, specimens, microscopical preparations, and instruments.

In 1879 a discussion on Internal Aneurism took place

in connection with this Society, and three other such discussions have been carried out with advantage at later dates, speakers coming from a distance to share in the proceedings. The subject in 1881 was Phthisis Pulmonalis, in 1884 Albuminuria, and in 1886 Cancer; and full reports of the debates have been issued as separate publications. The Society has also published two volumes of *Transactions*, one for 1883-84 and another for 1884-86.

GLASGOW OBSTETRICAL AND GYNAECOLOGICAL SOCIETY.—This Society was instituted in 1885 for the promotion of science and art in connection with midwifery and the diseases of women and children. There are 85 fellows, and the meetings are held in the hall of the Faculty of Physicians and Surgeons, St. Vincent Street, on the fourth Wednesday of each month from October to June, inclusive, at 8.30 P.M. Candidates are admitted by ballot, and the annual subscription is 5s. During last session seven meetings were held, at which 16 communications were brought forward by ten members.

THE GLASGOW AND WEST OF SCOTLAND BRANCH OF THE BRITISH MEDICAL ASSOCIATION.—On the 30th November, 1875, a meeting of medical gentlemen, practising in and around Glasgow, composed for the most part of those who were members of the British Medical Association, was called by circular, the purport of the meeting being the formation of a Branch of the Association. The meeting was held in the Faculty Hall, and Dr., now Sir George, Macleod was called to the chair.

Dr. Joseph Coats stated that there were 86 members of the Association in Glasgow, and neighbourhood; and 75 in the counties of Lanark, Ayr, Renfrew, Dumbarton, and Argyle. After fully discussing the question, it was resolved, on the motion of Dr. James Morton seconded by Dr. T. M'Call Anderson, that a Branch of the British Medical Association, to be called the Glasgow and West of Scotland Branch, be formed. A provisional committee was appointed, consisting of the following gentlemen—viz., Dr. George H. B. Macleod, Dr. Joseph Coats, Dr. T. M'Call Anderson, Dr. James Morton, Dr. W. T. Gairdner, Dr. J. G. Lyon, Dr. Hugh Thomson, Mr. W. L. Muir, Surgeon, all of Glasgow; Dr. John Strachan, Dollar; Dr. Bruce Goff, and Dr. Dean Fairless, Bothwell; Dr. G. H. B. Macleod, convener.

On 18th January, 1876, a general meeting was held, at

which laws for the regulation of the Branch were framed, and the following office-bearers were appointed—viz., *President*, Dr. Allen Thonison; *President-elect*, Dr. G. H. B. Macleod; *Vice-Presidents*, Dr. James Grieve, Port-Glasgow; Dr. D. Fraser, Paisley; *Honorary Secretaries*, Dr. Joseph Coats and Dr. J. G. Lyon; *Members of Council*, Dr. W. T. Gairdner, Dr. T. McCall Anderson, Dr. James Morton, Dr. Andrew Fergus, Glasgow Members; and Dr. Donald Macleod, Kilmarnock; Dr. James Cuthill, Denny; Dr. A. Stewart, Greenock, and Dr. Steven, Ardrossan, country members.

At first, the Branch met annually; but now it meets twice a year, the winter meeting being held in Glasgow and the summer meeting in a selected country district.

At the general meeting of the Branch, held on 26th June, 1884, it was moved that “the Branch approves of an invitation being sent to the Association to hold their annual meeting in Glasgow at an early date,” but it was not till December of that year that the motion was adopted. The Branch, of course, could not invite the Association; but an influential and representative committee was suggested to carry out the proposed invitation. The Branch now numbers 186 members, the annual subscription being 2s. 6d.

THE WESTERN MEDICAL CLUB.—Under the above title a social gathering of medical men occurs twice a year. The following sentences, which constitute the first entry in the minute book of the club, sufficiently indicate its mode of origin:—“On 25th July, 1845, by previous arrangement, the following gentlemen, members of the medical profession resident in Glasgow, met at dinner at Bell’s Inn, Bowling—viz., Dr. A. D. Anderson, Dr. William Weir, Dr. John Macfarlane, Dr. Robert Perry, Mr. George Watson, Dr. David Gibson, Dr. J. G. Fleming, Mr. William Lyon, Dr. Alex. Maclaverty, Dr. A. M. Adams, and Dr. Andrew Anderson. In the course of the evening, which was spent with great hilarity, it was agreed to institute a club, with the object of promoting friendly and social intercourse among the members of the medical profession in Glasgow and the West of Scotland.” Shortly afterwards the club was duly constituted, and its first dinner was held in the Black Bull Hotel, Glasgow, on 30th January, 1846, under the presidency of Dr. Robert Perry. The club now consists of 60 members, 30 of these being town and 30 country members, admission being by ballot as vacancies occur.

They dine together twice a year, in January and June, the winter dinner being held in Glasgow under the presidency of a town member, and the summer meeting being in the country—often somewhere in the neighbourhood of the residence of the particular country member who has been selected to preside. Frequently, however, a steamer is chartered for the day on Loch Lomond or the Firth of Clyde, and, after an hour or two of cruising, dinner is purveyed on board. If a member is absent from a meeting without giving notice to the secretary before a certain day, he incurs a fine, and these fines, along with the entry-money of new members, and the annual subscriptions of all members, constitute the funds of the club. If absent from four meetings (*i. e.*, for two years), a member ceases to be one of the club. The price of the dinner ticket for each member is only half of what the club pays the purveyor, the difference being defrayed from the funds; and the chairman is allowed to entertain two guests at the expense of the club, while any member may entertain one guest, who is a medical man but not practising within the municipality of Glasgow. Numerous guests enjoy the hospitality of the club.

C. F. P.

THE GLASGOW MEDICAL JOURNAL.

THIS journal was started in February, 1828, under the editorship of Dr. William Mackenzie, whose name is identified with ophthalmic surgery and with the Eye Infirmary of Glasgow. It was published quarterly under his editorship, and he continued in office for two years. The third annual volume was edited by Dr. William Weir, who was till lately a venerable figure amongst the Glasgow profession. In the fourth year Dr. Weir associated with himself Dr. Andrew Buchanan, and in the fifth and sixth years Dr. James Adair Lawrie.

The *Journal* was thus published quarterly during a period of six years—namely, from 1828 till 1833, both years inclusive.

It now ceased to exist, and was not revived for 20 years. In the year 1853 it was resuscitated, and we find Dr. William Weir again appearing in the editorial chair, now associated with Dr. James Steven. These two carried on the *Journal* as a quarterly for three years.

It then passed into the hands of Dr. George Buchanan and Dr. John B. Cowan, who edited it for two years—namely, in 1856 and 1857. For the following three years these gentlemen were associated with Dr. James M'Ghie, Superintendent of the Royal Infirmary, as editors. This carries us down to the year 1860.

In the year 1861 the editors were Dr. Joseph Bell and Dr. William Leishman, and they edited two volumes. Dr. Leishman was left alone in the editorship in 1863, and in 1864 he associated with himself Dr. P. A. Simpson. In the following year Dr. P. A. Simpson was the sole editor.

The *Journal* had now been published quarterly for a continuous period of 13 years, and it was thought that it might succeed as a monthly. In May, 1866, it came out as a monthly, under the editorship of Dr. P. A. Simpson, but it only continued for two years in this form.

In the year 1868 it seemed as if the *Journal* might become extinct; but, as such an event was regarded by many in the light of a serious calamity, there was a vigorous movement in the profession to do something to put it on a permanent basis. The result was that all who undertook to become subscribers to the *Journal* banded themselves together into the "Glasgow and West of Scotland Medical Association," whose principal object was "the promotion of medical science by the publication of a journal, to be called the *Glasgow Medical Journal*." In order to ensure its success, a number of leading men subscribed to a guarantee fund, which was to continue for five years. The *Journal* still exists under this Association, and it is satisfactory that the guarantee fund was never called up.

The first editor under this new arrangement was Dr. J. B. Russell, now the medical officer of health for the city of Glasgow, and the *Journal* was published quarterly under his editorship for six years. In the year 1875 Mr. Henry E. Clark was appointed editor, and he carried on the *Journal* for three years. At the end of that period he was succeeded by Dr. Joseph Coats.

The *Journal*, except for two years, had hitherto been a quarterly. It now, by the decision of the Association, began its career as a monthly, and so it has continued. During the first year of the monthly issue—namely, in 1878—each number consisted of 48 pages, making the total yearly volume the same as formerly, when it was issued quarterly. At the end of the first year, on the suggestion

of the editor, the *Journal* was enlarged to 80 pages, so as to make two volumes in the year. In the year 1882 the editor asked the Association to appoint Dr. Alexander Napier as co-editor, and the *Journal* has since then been carried on under the joint editorship of Dr. Joseph Coats and Dr. Alexander Napier.

In its present form the *Journal* consists of the following departments:—I, Original Articles; II, Current Topics, in which the principal local medical events are discussed; III, Reviews; IV, Meetings of Societies. This has greatly expanded of late, so that sometimes as many as 40 pages are occupied in the monthly issue. V, Abstracts from Current Medical Literature. This department is worked by a large staff of collaborateurs, who contribute every month condensed notes of important articles in their various departments.

The monthly issue of the *Journal* consists of at least 80 pages, but of late it has frequently been 88 or 96 pages; and the price is 20s. per annum.

JOSEPH COATS.

THE SANITARY JOURNAL.

IN December, 1874, Mr. John Welsh, Superintendent of Police and Sanitary Inspector, Perth, invited a few of his brother inspectors to form an Association of Sanitary Inspectors. A meeting was subsequently held at Stirling, on the 20th January, 1875. Among other things in the circular calling the meeting, it was said:—"The chief objects of the Association will be the mutual consideration of subjects connected with sanitary matters; the diffusion of information which will lead to an increased knowledge of the laws of health, and sanitary science generally; the establishing of a proper system of co-operation and communication between sanitary inspectors throughout Scotland, and the affording of aid to each other in all matters pertaining to the discharge of their duties."

At this meeting, the Association was formed, and the late Mr. Kenneth Macleod, Sanitary Inspector of Glasgow, was elected as President, and a committee of management was appointed to make arrangements for the first annual meeting to be held at Stirling, in June, 1875.

This committee, after carefully considering the best means

for disseminating sanitary knowledge, and otherwise carrying out the objects of the Association, resolved that this would be best effected by the publication of a monthly journal. The recommendation of the committee was adopted at the first annual meeting of the Association; and full powers were conferred on the committee of management to carry it out with the least possible delay.

The first number of the *Sanitary Journal* appeared on the 1st March, 1876, under the editorship of Dr. John Dougall, Medical Officer of Health, Kinning Park, Glasgow, who occupied the editorial chair for three months. Dr. Dougall having resigned office, the infant Journal was committed to the care of the present editor, Dr. James Christie, who has occupied the post since June, 1876.

The *Sanitary Journal*, like all other pioneer journals, had its early difficulties and struggles for existence. At the early age of two years, its life seemed to be fast ebbing away, death from inanition being imminent. The Association was then composed solely of Sanitary Inspectors, whose emoluments as such, did not, with a few exceptions, amount to more than ten pounds per annum; so that it could scarcely be expected that the members of the Association could continue their responsibility in connection with the *Journal*, in the face of an increasing debt. It appeared, therefore, that both the Association and the *Journal* were doomed.

In 1878, the present editor took upon himself the entire responsibility; the scope of the Association was enlarged, all those interested in sanitary science being admitted as members; and a new series of the *Journal* in a less expensive form was issued. Through the influence of Dr. J. B. Russell, Medical Officer of Health for Glasgow, and Ex-Lord Provost Ure, the Town Council of Glasgow became subscribers, several other Local Authorities following suit; and to these gentlemen the credit is due of having preserved the life of an Association which is now a power in Scotland, as regards sanitary matters, and of the *Journal* which represents it. The annual subscription for the *Journal* is 6s., and for membership of the Association, 2s. 6d.

JAS. CHRISTIE.

AN INQUIRY INTO THE LIMITS OF HEARING.

BY J. KERR LOVE, M.D.

THE following paper deals with the subject of the Limits of Hearing under these heads:—

- I. The lowest audible notes.
- II. The highest audible notes.
- III. The perception of difference in pitch.
- IV. The distance at which a note of given intensity can be heard.
- V. Tone or note deafness.*

THE LOWEST AUDIBLE NOTES.

The determination of the lower limit of the hearing of musical tones is beset with peculiar difficulty, because not only is there much individual difference in the power of hearing such tones, but it is difficult to be sure in examining compound tones that the fundamental tone is not obscured by a stronger upper partial, or indeed that a true fundamental is present at all. Helmholtz † has proved, by experiments with the Siren, that motions of the air which do not take the form of pendular vibrations can excite distinct and powerful sensations of tone, of which the pitch numbers are 2 or 3 times the number of the pulses of the air, and yet that no fundamental tone is heard at all. He was the first to give definite data for the examination of the lower ranges of hearing. Before his time, however, attempts were made to determine the lower limit.

Sauveur ‡ found that an organ pipe of 40 feet long gave the lowest note he could hear, but the difficulty of hearing the fundamental tone of even much shorter pipes makes it

* I hoped to add a section on the appreciation of musical intervals, but the instrument I devised for testing appreciation of pitch was found to be too small for the former purpose. I have under consideration the construction of a larger instrument and hope to resume the investigation at an early date. The English literature of the subject is scanty. I have therefore to apologise for the liberal use made of Professor Preyer's papers, "Ueber die Grenzen der Tonwahrnehmung" and "Akustiche Untersuchungen," to which I am also indebted for some of the references not within my reach. For help in carrying on the investigation I have to thank Dr. M'Kendrick; the President and Leader of the Glasgow Choral Union; Mr. Ballantyne, Mr. Schofield, and Mr. Cunningham, and other musical friends.

† *Sensations of Tone*, translated by Alex. J. Ellis, p. 175.

‡ *Hist. de l'Acad. Roy. des Sciences* (Année 1700), p. 190.

probable that he heard only an upper partial. The fundamental tone of such a pipe would have a vibration number of $12\frac{1}{2}$.

Chladni * gradually shortened a string till it made 16 vibrations per second and here got the first impression of tone, but Dr. Preyer considers there is an entire want of evidence that he heard the fundamental tone.

Biot † stretched a string by increasing weights, and found that a vibration number of 16 was necessary that even the best ears might hear a tone. The tone produced gave the same impression as that of an organ pipe 32 feet long. But proof is wanting that the tone heard from such is its fundamental tone and is not that produced by the combination of this with an upper partial.

Wollaston ‡ after noting the fact that exhaustion of the air in the tympanum creates deafness to low notes, states that "in the natural healthy ear there does not seem to be any strict limit to the power of discerning low notes. All persons who are not palpably defective in their organs of hearing continue sensible of vibratory motion until it becomes a mere tremor which may be felt or even almost counted."

Savart || thought 8 vibrations per second were heard as a tone, but Helmholtz points out that the means used—a rotating rod striking through a narrow slit—was quite unsuitable for making the lowest tone audible and has no doubt that the tones heard were upper partials. By another method Savart himself fixed the number 32 per second as giving the lowest audible tone. Here he used a revolving toothed wheel.

Despretz § thought no less than 16 vibrations per second gave a tone, because he could get nothing under this which gave a sound which he could compare with any musical tone.

Helmholtz, ¶ in discussing the lowest tones produced in organ pipes of 16 and 32 feet long states that in the upper part of the 32 foot octave the continuous sensation of tone disappears and that in the lower half nothing but the separate impulses are audible. The sensation of tone disappears, therefore, according to this observation when the vibrations have been reduced in number to about 28 or 26 per second. He has produced deep simple tones by another method. He stretched a thin brass pianoforte wire on a sounding box

* *Die Akustik* (Leipzig, 1802), pp. 2, 36, 294.

† *Lehrb. d. Experimentalphysik*. Leipzig, 1829.

‡ *Philosophical Transactions for Year 1820*, p. 310.

|| *Poggendorff's Ann. der Physik und Chemie*, 1830, 1831.

§ *Poggendorff's Ann.*, 1845.

¶ *Sensations of Tone*, pp. 175-176.

having only one opening by which the air could escape into the ear. The copper Kreutzer piece was attached to the middle of the string, and when the latter was struck a compound tone resulted, having a deep prime tone easily separated from the lowest upper partials, which in this case are several octaves above the prime. The tone of $37\frac{1}{2}$ vibrations was very weak and rather jarring. At $29\frac{1}{2}$ hardly anything was audible. From two great tuning forks Helmholtz was able to hear a tone of 30 vibrations, but thought he heard nothing at 28 vibrations, although he was able to produce oscillations with an amplitude of about $\frac{1}{2}$ of an inch.

Professor Preyer,* of Jena, also experimented with great tuning forks, and found that at 28 vibrations he heard a grumbling tone. At 24 vibrations his forks failed, but as the individual vibrations might, he thought, be too weak to produce a tone, he fell upon another method. He used metallic tongues, which, vibrating over 40 times per second, always gave the fundamental tone, and under 8 times a second gave nothing. The apparatus was made by Herr Appunn, of Hanau. Dr. Preyer argued that between 8 and 40 the lowest vibration number must exist, and his experiments with the great tuning forks made him sure that this lowest audible vibration number was between 8 and 28. The metallic tongues stand upright, so that each can be seen through the containing glass case. The air is forced in by a very strong bellows. Without resonators the fundamental tones above 32 can be easily heard in spite of the strong upper tones. Below 26 the most attentive ear heard the fundamentals with great difficulty. But if at the moment, when all murmuring ceased, the ear was closely applied to the wooden box, a deep buzzing tone was heard gradually diminishing in strength till it suddenly disappeared. That this was a true fundamental Dr. Preyer considers as certain, for the tone agrees certainly with that of the great tuning forks, and this tone is much deeper than any upper tone heard. The depth of this isolated fundamental tone increases with the lessening vibration number for all normal hearing persons down to 24. Below that the intensity diminishes rapidly although the vibration amplitude increases, therefore the fundamental tone becomes almost certainly inaudible.

Dr. Preyer found that for himself the vibration number of the deepest tones lay between 14 and 20. None tested by him heard anything below 14. The interruptions were felt and the vibrations were seen but nothing was heard. From

* *Ueber die Grenzen der Tonwahrnehmung* (Jena 1876), pp. 7-17.

8 to 14 the sound of the oscillations of the individual vibrations was heard, but above 14 the individual oscillations were still heard, and in addition a dull sensation of tone. Between 15 and 28 individuals differ as to the point at which the sensation of tone begins. A violinist heard 24 distinctly but heard nothing at 18 and 22. Dr. Preyer heard a deep tone at 19, at 18 and 17 he heard it less distinctly; at 16 he sometimes heard and sometimes not; at 15 he heard a soft dull sound difficult to describe, which, however, like all the deepest tones, is not grating or rough but agreeable. An observer who was not theoretically instructed but was naturally quick at hearing agreed with him in all these conclusions. As the result of hundreds of trials, during which the observer knew nothing of the exact vibration numbers of the tones, Dr. Preyer has constructed the following table:—

- 8 } No tone; an intermittent rubbing sound is heard; the intermissions can
9 } be counted.
- 10 }
- 11 }
- 12 } No tone. The tremor is felt and the movement seen; the rattle is
13 } weaker.
- 14 }
- 15— No tone. Some perceive an obscure sound.
- 16 } The sensation of tone begins. In addition to the tremor which can be
17 } felt, many hear an obscure tone.
- 18 }
- 19 }
- 20 } Many hear a clear impression of tone. The tone is lightly buzzing.
- 21 }
- 22 } Many hear a buzzing tone.
- 23 }
- 24 } Everyone with normal hearing now hears a deep mild musical tone.
- 25 }
- 26 }
- 27 } As the tone becomes higher it is less easily heard, its duration is less but
28 } it is still clear.
- 29 }
- 30 }
- 31 } Tone still clear, but of shorter duration.
- 32 }
- 33 }
- 34 }
- 35 } The tone is very short and difficult to hear.
- 36 }
- 37 }
- 38 } No tone can be made out because the after-vibrations of the reed are too
40 } weak.

Dr. Preyer says that much practice is needed to hear the deepest tones. His observations on different tones support his conclusions regarding the lower limits of hearing.

Helmholtz * thinks Dr. Preyer's results cannot be trusted on

* *Sensations of Tone*, p. 176.

the evidence above presented. He says—"With extensive vibrations the tongues may have very easily given their points of attachment longitudinal impulses of double the frequency, because when they reached each extremity of their amplitude they might drive back the point of attachment through their flexion, whereas in the middle of the vibration they would draw it forward by the centrifugal force of their weight. Since the power of distinguishing pitch for these deepest tones is extremely imperfect, I do not feel my doubts removed by the judgment of the ear when the estimates are not checked by the counting of beats."

Mr. Alex. J. Ellis was able to supply this check on a copy of the instrument used by Dr. Preyer. The copy is in the South Kensington Museum. After detailing his experiments, Mr. Ellis adds—"There can be no question as to the real pitch." Mr. Ellis' experiments are given in detail in his last edition of Helmholtz' *Sensations of Tone*, and are embodied in a recent statement on the subject by Dr. Preyer,* and appear to leave little room for doubt.

But while tones of 16 to 20 vibrations per second can be heard by some ears, they are of no value in music. I cannot appreciate accurately the separate intervals on the piano below the lowest E and F having vibration numbers of 40 and $42\frac{2}{3}$ respectively. This may be because the tuning of these low notes is seldom perfect, but this very difficulty in tuning shows that these tones are on the border of the musical scale.

Dr. Preyer† has recently had two great tuning forks made which give 13·7 and 18·6 vibrations per second. The former gave no note at all; the latter gave a distinct dull tone free from droning or jarring.

THE HIGHEST AUDIBLE NOTES.

The next point to look at is the other end of the range of hearing. What is the highest audible note? From the very low tones we have just been considering, those represented by higher vibration numbers become more definite and more used in music for about seven octaves, when their musical value begins rapidly to diminish and soon disappears. The notes having vibration numbers from 256 to 1,024 per second are those we most commonly hear. Human voices range from about 64 to 1,400. Anything above 1,400 is unusual, even in treble voices. The 16 foot C of the organ gives a note having

* *Akustiche Untersuchungen* (Jena, 1879), pp. 1-11.

† *Akustiche Untersuchungen*, p. 2.

32 vibrations per second, as we have seen, which is questionably musical, and which is seldom used alone in organ music. Above 4,000 vibrations per second the notes begin to be too indefinite in pitch to have a musical value. The highest note of most pianos has about 3,500 for its vibration number; the highest of the piccolo flute, 4,700. Such notes are useful chiefly to give brightness to the combinations in which they occur. But the ear can appreciate and often hears notes having a very much higher vibration number. The sounds made by bats, crickets, and some insects are caused by vibrations occurring at the rate of from 5,000 to 15,000 per second. The squeak of a mouse too is among the very high ranges. While most ears can hear these and even higher notes, curious instances of inability occur. Professor Tyndall* gives a good one. When he was crossing the Wengern Alp, in company with a friend, "the grass on each side of the path swarmed with insects which to me rent the air with their shrill chirruping. My friend heard nothing of this insect music, which lay beyond his limits of audition."

Many attempts have been made to ascertain the upper limits of hearing. Sauveur† accepted 6,400 vibrations as producing the highest audible note. This he got from a pipe $\frac{15}{16}$ of an inch long.

Chladni‡ adopted a note having a vibration number of 8,192 as the highest audible, and Biot agrees with him.

Wollaston|| found, when experimenting with small organ pipes, that a friend, who in other respects heard well, and who had a good perception of musical pitch, could not hear a pipe which gave a note which was four octaves above the middle E of the piano, and had therefore a vibration number little over 5,000. A small pipe of $\frac{1}{4}$ inch long was his own limit. This must have produced vibrations of about 20,000 per second§. He thought deafness to the chirruping of the sparrow exceedingly rare, to the sound of the cricket, several notes higher, not common, and to the piercing squeak of the bat, considerably higher than these two, not very rare. Two relatives of his own were deaf to some of these higher natural sounds.

* *On Sound* (Longmans, Green & Co.), p. 71.

† *Hist. de l'Acad. Roy. des Sciences* (1700), p. 190.

‡ *Die Akustik*, p. 34.

|| *Philosophical Transactions for 1820*.

§ This supposes a pipe of very small scale and open, also that measurement was from upper lip. See p. 22.

Despretz * had very small forks made which gave the following notes :—

C ^{IV}	with	2,048	vibrations.
C ^V	"	4,096	"
C ^{VI}	"	8,192	"
C ^{VII}	"	16,384	"
C ^{VIII}	"	32,768	"

He found that with practice all could be heard. Some observers heard them well and recognised them for octaves, so that the interval C^{VI} to C^{VII} was heard, and after much labour accurately recognised, but the continual hearing of these high notes occasioned violent headaches, and the hearing of very high notes took place slowly. No tone above 36,864 (D^{VIII}) could be produced, F^{VIII} could not be produced by shortening the forks, and E^{VIII} was inaudible.

With Appunn's Siren 24,000 interruptions of the air were produced per second, and in addition to the current of air some observers heard a very distinct, although faint, high tone. Many, however, heard only the air current. König, of Paris, by means of steel rods reached a vibration number of 32,768, but Dr. Preyer found that only himself and another heard anything when the highest was sounded, and the two lower with 24,576 and 20,480 were no better heard by the majority of observers. Some heard a short faint tone at 20,480. Many older persons heard nothing at 12,288 and one student of 20 years of age could scarcely hear this tone although quick at hearing in other respects. In connection with this subject Herr Appunn has constructed a series of 31 tuning forks, representing a diatonic scale of 4½ octaves with vibration numbers from C^{IV} 2,048 to C^{VIII} 40,960. These were constructed at immense trouble, and the difficulties connected with the higher forks can hardly be estimated. Herr Appunn informed † Mr. Ellis that 100 guineas would not pay him for the mere labour of making these forks. They were shown at the Loan Exhibition, and at the end of the Exhibition purchased by the authorities of the South Kensington Museum. The following are the notes and vibration numbers of the forks :—

* *Poggend. Ann.*, 1845.

† "On the Sensitiveness of the Ear to pitch and change of pitch in music," by Alex. J. Ellis. 1877, p. 10.

Fork.	Note.	Vibrations.	Fork.	Note.	Vibrations.
1	C ^{IV}	2,048	17	E ^V	10,240
2	D ^{IV}	2,304	18	F ^V	10,922 $\frac{1}{2}$
3	E ^{IV}	2,560	19	G ^V	12,288
4	F ^{IV}	2,730 $\frac{3}{4}$	20	A ^V	13,653 $\frac{1}{4}$
5	G ^{IV}	3,072	21	B ^V	15,360
6	A ^{IV}	3,413 $\frac{1}{2}$	22	C ^{VII}	16,384
7	B ^{IV}	3,840	23	D ^{VII}	18,432
8	C ^V	4,096	24	E ^{VII}	20,480
9	D ^V	4,608	25	F ^{VII}	21,845 $\frac{1}{2}$
10	E ^V	5,120	26	G ^{VII}	24,576
11	F ^V	5,461 $\frac{1}{2}$	27	A ^{VII}	27,306 $\frac{1}{2}$
12	G ^V	6,144	28	B ^{VII}	30,720
13	A ^V	6,826 $\frac{3}{4}$	29	C ^{VIII}	32,768
14	B ^V	7,680	30	D ^{VIII}	36,864
15	C ^{VI}	8,192	31	E ^{VIII}	40,960
16	D ^{VI}	9,216			

Dr. Preyer* has had opportunity of working with these forks. He and several others have heard all the 31 tones and have been able to distinguish the difference of tone in all. Up to C^{VII} the scale can be easily heard. Good observers can hear the octaves certainly up to E^{VIII}, but often fail at the fifths. To some the highest tones lose entirely their musical characters and they have the feeling "that very fine needles were being stuck into the ears." Other disagreeable sensations were described. One felt "as if a thread were being drawn through the cheek from the ear to the chin along the bone of the lower jaw." Another found the E^{VIII}, which many could not hear, very soft. To Dr. Preyer himself the notes from the E^{VII} upwards gave the sensation of "the tympanic membranes being drawn inwards." In every case when B^V was strongly struck he had a keen pain in the ear and a feeling of creeping in the skin of the back. Prolonged listening produced headaches. But Dr. Preyer did not find that he heard these notes slowly as Despretz did, although the judgment of the pitch required more time. At 6 metres distance the painful effects disappeared, and all the tones up to E^{VIII} inclusive were heard pure and without pain.

From C^{IV} to C^{VI} the tones are pure and pleasant. At C^{VI} much depends on the intensity of the tone. Only where the forks were very strongly struck did the sound give rise to pain.

The technical difficulties in making such forks are so great and the price, of necessity, so high, that few can hope to have

* *Ueber die Grenzen der Tonwahrnehmung*, p. 21-25.

Dr. Preyer's experience of them.* Mr. Francis Galton has, however, given us a simple means of producing very high notes. He uses a whistle consisting of a tube of very fine bore, which can be shortened or lengthened by the movement of a small piston or plug. It is sounded by the compression of a small india-rubber bag fastened to the end of the apparatus. Mr. Galton tells me that the best whistles for testing human hearing are made by the Cambridge Scientific Instrument Co.

The whistle always makes two sounds at the same time, the high musical note best described as a shrill squeak and the noise made by the air leaving the mouth of the whistle. To apply the test the whistle is sounded and the length shortened till a point is reached when the squeak becomes inaudible. With a little practice this can be easily done. The length of the whistle is then measured, by inserting a wedge-shaped ivory scale between a flange fixed to the piston and a flange on the whistle, the numbers engraved on the whistle giving the length of the whistle in millimetres. I append the figures accompanying the Cambridge whistles:—

Length of Column of Air in millimetres.	No. of Complete Vibrations per second by calculation.	Length of Column of Air in millimetres.	No. of Complete Vibrations per second by calculation.
1.	85,000	3·5	24,290
1·2	70,830	4·	21,250
1·4	60,710	5·	17,000
1·5	56,670	6·	14,170
1·6	53,130	7·	12,140
1·8	47,220	8·	10,630
2·	42,500	9·	9,443
2·5	34,000	10·	8,500
3·	28,330		

(A correction has to be made for these figures which I shall shortly explain.)

Mr. Galton, in his *Enquiry into Human Faculty*, says—“On testing different persons, I found there was a remarkable falling off in the power of hearing high notes as age advanced. The persons themselves were quite unconscious of their deficiency so long as their sense of hearing low notes remained unimpaired. It is an only too amusing experiment to test a party of persons of various ages, including some rather elderly and self-satisfied personages. They are indignant at being thought deficient in the power of hearing, yet the experiment quickly shows that they are absolutely deaf to

* *Enquiry into Human Faculty.*

shrill notes which younger persons hear acutely, and they commonly betray much dislike to the discovery. Every one has his limit, and the limit at which sounds become too shrill to be audible to any particular person can be quickly determined by this little instrument. Lord Rayleigh and others have found that sensitive flames are powerfully affected by the vibrations of whistles that are too rapid to be audible to ordinary ears. I have tried the experiment with all kinds of animals on their power of hearing shrill notes. I have gone through the whole Zoological Gardens using an apparatus for the purpose. It consists of a walking stick that is in reality a long tube. It has a bit of india-rubber pipe under the handle, a sudden squeeze on which forces a little sound. I hold the stick as near as is safe to the ears of the animals, and when they are quite accustomed to its presence and heedless of it, I make it sound. Then if they prick their ears it shows they hear the whistle. If they do not, it is probably inaudible to them. Still, it is very possible that in some cases they hear but do not heed the sound. Of all creatures, I have found none superior to cats in their power of hearing shrill notes. It is perfectly remarkable what a faculty they have in this way. Cats, of course, have to deal in the dark with mice and to find them out by their squeals. Many people cannot hear the shrill squeak of a mouse. Some time ago singing mice were exhibited in London, and of the people who went to hear them, some could hear nothing while others could hear a little, and others, again, could hear much. Cats are differentiated by natural selection until they have the power of hearing all the high notes made by mice and other little creatures they have to catch. A cat that is at a very considerable distance can be made to turn its ear round by sounding a note that is too shrill to be audible by almost any human ear." Mr. Galton also found that small dogs heard much higher notes than large ones.

In consequence of the narrowness of the pipe, the usual rule for calculating the vibration number of any note from the velocity of sound and the length of pipe used in the production of that note, gives only a result which is roughly approximate to the truth. By acting on a sensitive flame in free air* Messrs W. N. Shaw and F. M. Turner found the true wave-lengths of the notes tested. The wave-length measured in this way was considerably greater than four times the length of the whistle pipe, and it varied appreciably

* "On some measurements of the notes of a whistle of adjustable pitch," *Proceed. Cambridge Phil. Soc.*, 28th Feb., 1887.

with the pressure of the air with which the whistle was blown. The flame flared, however short the length of the pipe, but the shortest length which gave notes was 15·84 mm. corresponding to a vibration frequency of 21·517 complete vibrations per second. The length of the pipe was 3 mm., and neither observer heard the pipe at a less length than 3·7 mm. ; so that distinct notes were obtained when the sound was inaudible.

The general results of these investigations were :—

- (1.) That the wave-length in free air is considerably greater than four times the length of the whistle.
- (2.) That of 3 whistles tested, no marked difference was noticed in the individual results.
- (3.) That the wave length perceptibly diminishes, that is, the pitch rises as the pressure of air increases.

In experimenting with very high notes I found Mr. Galton's whistle failed in the intensity of the sound produced. Its range, too, is limited. At 5 mm. where the vibration number is nominally 17,000, and actually about 13,000, the note to me loses its clearness and is much blinded by the rush of wind. At 4 mm. I can sometimes hear the note and sometimes not, but it is more of a metallic wheeze than a true note. I have met no observer who can hear the note at 3 mm. where Messrs Shaw and Turner found the vibration frequency to be 21·517. At 10 mm. the whistle becomes nearly inaudible to me, and I hear only a dull whish replacing the note, which however, now and then is heard by slight and careful blowing. Following Dr. Wollaston, I have used small open organ pipes for the production of high notes. The smallest pipes used in organs are called Fifteenths. These measure from 4 $\frac{1}{2}$ to 5 mm. diameter. I have also had pipes made by Mr White, of Cambridge Street, of a diameter of 2 and 3 mm. By cutting these down I have succeeded in getting notes from a pipe of 6 mm. length, and in one case of 5 mm., measured from the upper lip of the mouth. (This is the plan of measurement adopted in the article "Organ" *Encyclopaedia Britannica*, and is apparently adopted for the Cambridge Whistles.) The total length of the whistle or pipe is 1 mm. more than these figures. Calculating by length only, these pipes must give notes of from 28,000 to 34,000 (nominal vibration number), or, if Messrs. Shaw and Turner's correction can be taken for open pipes, of 21,000 to 25,000 vibrations per second. I have not yet had opportunity of testing them with the sensitive flame, but they appeal to the ear as higher than the notes of

Mr. Galton's whistle. With these small open pipes I have been able to make very high notes audible to elderly persons who were quite deaf to the notes of the whistle.

If Dr. Wollaston used an open pipe, and if the pipe was an ordinary organ pipe, his note must have been somewhere between 15,000 and 20,000 vibrations per second. I assume that the measurement was from the upper lip, but the absence of data as to these points deprives the experiment of much of its value. I have, therefore, thought it worth while to give the accurate measurements of the pipes I have used, and to add some remarks on the influence of width on the pitch of a pipe. In books on acoustics it is taught that pitch depends on length. No notice is taken of the "scale" or diameter of the pipe. Organ builders know that scale or diameter influences pitch, and build accordingly. Hopkins states the matter thus: "An alteration of scale produces a slight difference in the length of a pipe producing a given sound." The influence of the diameter on pitch can be shown by the following experiment: Let two ordinary metal diapason pipes, respectively of 11 and 15 mm. diameter, or "scale," be taken and cut down to a length of 68 mm. Under any ordinary wind pressure these pipes will give their fundamental notes, whether open or closed, and there is no risk of mistaking the fundamental for any over tone. Let the foot, languid, and lips be alike in the two pipes, and let them differ only in diameter. When used as closed pipes the broader will give the 1,024 C, the narrower a full tone above this, the D with 1,157 vibrations. Let now a third pipe of the same diameter as the broader of the first two be cut down to a length of 58 mm. It will give the same note as the narrow pipe of 68 mm. length. If the pipes be sounded as open pipes a similar difference in the higher octave is found. A and B will be a tone apart, whilst B and C will be in unison.

I have been unable to find in any English work a law which states the influence of diameter on pitch, but in *Annales de Chimie et de Physique*, vol. xxxi, p. 394, M. G. Wertheim gives the following formula for cylindrical pipes:—

$$n = \frac{v}{2(L + 2c\sqrt{s})} \text{ where}$$

n = number of vibrations per second.

v = velocity of sound in air at given temperature.

l = length of pipe.

s = cross sectional area of pipe.

c = constant to be determined by experiment.

He also gives a set of tables which shows that this formula is not rigidly applicable, for in 42 experiments in cylindrical pipes the constant varies from .17 to .256. By the application of this formula to the above three pipes, a similar variation was found.

My observations on the hearing of very high notes corroborate, for the most part, those of Dr. Preyer and Mr. Galton. Between 40 and 50 years of age appreciation for these tones begins to be impaired, but not to the same extent in musical as in unmusical people. Deafness to the notes of Mr. Galton's whistle is common after 50. Hearing is sometimes retained at 60. I have met with one very remarkable case of deafness to high notes which is an exact parallel to that recorded by Dr. Wollaston. A musical friend, whose ear I have found to be acute for the appreciation of small intervals, is deaf to all notes above D^v (4,752 vibrations.) He hears this note badly on the organ. He hears nothing when E^v is sounded (5,280 vibrations), but he hears C^v (4,220 vibrations) distinctly. Dr. Wollaston thinks that in very early life there is deafness to very high notes. He says, however, that this opinion is not founded on direct experiment but "rests on the statement of persons now grown up." My experiments with children do not support this opinion. Children old enough to understand the experiment hear high notes as well as adults.

Dr. Thomas Barr * found the perception of high notes destroyed or diminished in the case of boilermakers and others who work amidst noisy surroundings. I have met with one case in which shrill notes are very disagreeable to the left ear but are heard by the right ear without unpleasantness. A weakly-ticking watch was heard by both ears equally well, and hearing was in other respects normal. Examination by speculum showed both ears healthy and apparently alike. I do not know if this peculiarity has been noted before, but it is worth while recording, in connection with Fechner's statement, that in individuals of normal hearing the left is more acute than the right ear. In connection with this case Mr. W. H. Cole, with whom I discussed it, informs me that when listening attentively for anything out of tune in any of the instruments of his band, he "invariably uses the left ear and would never think of using the right." He thinks the use of the baton with the right hand may have something to do with this choice of the left ear.

* *Glasgow Philosophical Society*, 3rd March, 1886.

NOTES OF VISIT TO HOMBURG.

BY PROFESSOR DUNLOP.

(A paper read before the Glasgow Southern Medical Society, 17th May, 1888.)

THREE summers ago I had the pleasure, and I may add, the good fortune of visiting the Continent under exceptionally favourable circumstances, and of passing three weeks in the height of the English holiday season at Homburg, a fashionable spa in Central Germany, situated about 7 or 8 miles from Frankfurt-on-the-Main, and distant from Glasgow about two days' journey. During these three weeks I placed myself under the medical guidance of Dr. Dietz, one of the principal physicians of Homburg, and had thus personal experience of the great value which is attached to the curative and health-restoring properties which are to be found in its mineral waters, and in its baths, aided by its delightful climate, its magnificent scenery, its pine woods and forests in the Taunus Mountains, its Kursaal, in whose gilded chambers the demon of gambling held high revel in days of yore, its beautifully laid out gardens, its music and its promenades, its excursions to the Saalburg, where there are most wonderfully perfect remains of a large Roman camp, which recall the days of Cæsar and his wars in Gaul. Besides, too, there are old castles and battle towers of more recent date, which had been held by barons bold, who had been crushed and defeated during the thirty years war.

It has occurred to me that coming as we are to the holiday season, it might not be uninteresting to the members of this Society were I telling them, from a purely medical point of view, something of these things. In visiting the Continent it is always pleasant to have cheerful and congenial companions with you, and it adds very greatly to the pleasure of a prolonged stay at a fashionable spa to be conscious of improvement in your own health, to have your comfort and happiness greatly promoted, your knowledge of therapeutics, and of the world, extended, and that too at the cost, not of yourself, but of somebody else, whose physical condition it may be your pleasure and duty to supervise. I ask you, gentlemen, to accompany me in your mind's eye as we steam out of Dover Harbour in that wonderful twin vessel, the "Calais Douvres," with its four funnels, and gaze with no little wonder and delight at the white cliffs of Albion, brist-

ling with guns to defend our shores from invasion. After an exceedingly rapid and pleasant passage, we landed at Calais, and by and by, after a fatiguing and otherwise unpleasant journey in a stuffy, narrow, and crowded French train, we reached Brussels. Between Calais and Brussels we were much surprised at the abundant evidence of great prosperity and comfort which everywhere prevailed—splendid crops of every variety—cereals and fruits. Every field and every bit of ground up even to the railway line cultivated, no waste land to remain unproductive. This was seen to be especially so when we crossed the frontier of France and entered Belgium. Although Belgium, to a large extent, is a Roman Catholic country, she is happy and prosperous, much more so than any other Roman Catholic country in the world, having no standing army of any size—no need of soldiers except to watch the frontier—taxation is very low, and every encouragement is given to the extension of commerce, and to the prosecution of the arts of peace.

I pass over the incidents of a stay for a few days at Brussels, and of my visit to the ever memorable field of Waterloo, where Wellington with his troops, on a Sunday morning in the month of June, gained a glorious victory for England, which gave peace to a troubled Europe; and of my delight at the unexpected meeting, in the neighbourhood of the Grand Hotel, of the popular Vice-President of this Society, who was enjoying a well earned holiday, and was about to leave for Ghent and Bruges.

Leaving Brussels we arrived in due course at Cologne, where we stayed for a day to visit the famous Cathedral.

In the Hotel du Nord, in going down to dinner, which was served on separate little tables in the open air, our party, unaccustomed to foreign travel, and consequently a little shy and diffident, were greatly amused, and placed at their ease all at once by a waiter who, in the midst of a perfect babble of tongues which "no fellah could understand," said quite aloud, "Come away—this way Professor"—professors are worth something in foreign countries—and, pointing to seats which he had reserved for us in the best place, bowed politely to our companions. In answer to my enquiry, "And who may you be?" he said, "I was for some years a waiter in St. Enoch's Hotel, Glasgow, and I knew you, doctor, when you arrived from the train." This young fellow, who spoke better English than any of his German brethren—showing that "Glasgow English" was better even than that of London, where they had served—stood our friend, and saw us

comfortably off next day by train to Frankfurt-on-the-Main.

I need not dwell on the beauties of the Rhine as we ran down its left bank per train, its ancient towers, its castles, and its vine-clad hills. The only remark of a medical kind which I may now make is, that at the various stations, the wine of the country, Assmanshausen, and the Nierstein, and many other varieties, were offered for sale at the carriage windows, and I am not far wrong in saying that, during that very delightful railway journey, I had frequently to observe, as we steamed out of the stations, that the Rhine wine was very fine, and at the close of the day I did not feel anything the worse of my frequent libations.

Arriving at Homburg in the evening, we had time to have a look round, and on the following morning, without waiting for the usual medical advice and guidance which almost every visitor seeks, and which we were to obtain at the forenoon consultation hour, our party went off to the wells, and while they are familiarising themselves with the topography of the springs and the various points of interest, including the weighing machine, where the weight of each individual is tabulated and noted for future reference, let me make a few observations about mineral springs in general and those of Homburg in particular.

Almost all medical men who have had personal and practical acquaintance with mineral springs are disposed to acknowledge that they possess real value as therapeutic agents. No doubt in olden times there were superstitions of various kinds regarding the efficacy of special wells. In some an angel was required to trouble the waters before their virtues became effective, in others named the "holywells," the waters were thought to derive their great value from passing over the graves of holy men. There was a spring well not very far distant from where we now are, the waters of which were famed for "mixing and blending" purposes. The water was sparkling, cool, and light. It was said that the virtues of that well were greatly increased during the year 1832—the cholera year. It was one of the first wells shut up by the Health Committee of Glasgow acting on the advice of Professor Gairdner, its then Medical Officer of Health. Its waters contained a large quantity of the drainage from a piece of ground which had been used for the interment of pauper patients who had died of cholera.

Professor M. Charteris of Glasgow University, who is quite an authority on the spas of the continent, looked at from a

Scottish professorial point of view, tells us in his recent valuable work * on Health Resorts that springs have as their constituents various salts, and that these issue from the earth in some cases at a high temperature, in others at a middle heat, and in others again cold. In some springs the constituents of the waters are numerous, in some limited, in others none or next to none, the waters of the latter whether hot or cold being just simple and pure. These observations form the basis of a classification of mineral springs—(1) Simple thermal waters; (2) Common salt, or mineral saline waters; (3) Alkaline waters; (4) Sulphuretted waters; (5) Iron or chalybeate waters; (6) Sulphur waters; (7) Earthy or calcareous waters. Then, again, there are health resorts which are simply climatic or which may have in addition some popular form of cure, such as whey, grape, mud, &c.

The mineral springs of Homburg belong to the second and fifth sets of those enumerated, and are termed the ferro-saline acidulated waters. They are five in number, and are within five minutes' walk of the town. They are named the Elizabeth, Kaiser, Luisen, Ludwigs, and Stahlbrunnen. It is a very curious fact that the waters of these wells, which are within a circle having a diameter of 250 to 300 yards, although possessing somewhat similar qualities, differ markedly in their physiological action. In all the wells the water is seen to come bubbling up clear and transparent into stone basins. Some of these wells have been known for ages, and there is evidence to show that their value and virtues were recognised by the Romans, who occupied the camp at Saalburg.

It is stated that during the internal disturbances in Java, in the East, and at Ischia in Italy, there was observed a manifest and decided change, both in the temperature and amount of waters, quantity of free gases, such as carbonic acid and sulphuretted hydrogen. There was a decided increase in all the wells of their mineral constituents, and it was specially noted, in both the Elizabeth and Luisen—wells that resemble one another very closely, but differ in this respect, that the Luisen contains twice more iron than the Elizabeth, and the latter, the Elizabeth, contains twice more salines than the former, the Luisen—had their constituents greatly increased in quantity. The waters in both wells rose to a considerable height—several feet—and continued to do so during the whole period of earthquake disturbance. I am not aware that the waters at Homburg last year were in sympathy with the earthquake in the Riviera.

* *Health Resorts at Home and Abroad.*

Of the five springs, so far as my observations enabled me to judge, three—the Elizabeth, Luisen, and Ludwigs—were used internally, the Kaiser and Stahlbrunnen externally, and principally in the form of baths.

Fresenius, the eminent German chemist, with whose works many of you were familiar in your student days, gives an analysis of the Elizabeth spring. He says “that in it are found the following chemical compounds—namely, chlorides of sodium, potassium, lithium, ammonium, calcium, magnesium, iodide and bromide of magnesium, sulphates of lime, baryta and strontia, carbonates of lime and magnesia, protoxide of iron, protoxide of manganese, phosphate of lime, free carbonic acid in considerable quantity, and some sulphuretted hydrogen.”

Of the Luisen spring Fresenius speaks thus—“The water has a pleasant taste, at once revealing the presence of common salt, of protoxide of iron and carbonic acid, as well as a small proportion of sulphuretted hydrogen, of which the water perceptibly smells, more especially when shaken in a half-filled bottle, the gas thereby being copiously disengaged. It is a chalybeate water, rather pleasant to drink.” The water of this spring seemed to me to be largely patronised by ladies.

The Ludwigs spring resembled Apollinaris water with which we are all familiar. It is moderately saline, much more so than the other two above mentioned. I found it light and brisk with carbonic acid, which was always freely escaping, and it was a pleasant drink in the heat of the day, alone or in combination with the wine of our own country.

The Kaiser and the Stahlbrunnen, both of which I tasted, were strongly saline, they contained too much sulphuretted hydrogen. Their smell was unpleasant, and their taste rough and prickly.

Such being the chemical constitution of the mineral waters of Homburg, it may be asked what are their effects and physiological action? According to Dr. Hoeber, one of the physicians of the town, the saline waters are principally restorative. They act upon the mucous membranes, increasing and regulating the functions of the same, as well as stimulating the respiratory and alimentary organs. They are said to have a powerful influence upon the large organs such as the liver and kidneys, and they are credited with having the power to revolutionise the whole economy of the body, increasing what the German pathologists term “tissue changes,” and renewing the blood—both the white and red corpuscles—with great rapidity. Dr. Hoeber further states

that the waters exercise a remarkable effect on the remains of inflammatory exudation and processes, greatly facilitating their absorption ; gouty chronically enlarged joints being soon reduced to their normal size. In large doses the waters acted as a purgative. In some individuals, however, they seemed to be after a time more diuretic than purgative. Dr. Hoeber sums up his observations by the following :—" By increasing the activity of the kidneys and bowels, accelerating tissue changes, relieving engorged abdominal organs, promoting and stimulating absorption, their use tends to reduce the weight without lowering the strength of the patient. On the other hand by helping the absorption of albuminates and increasing the secretion of the gastric juice, the waters not only improve the appetite, but materially alter for the better the whole state of the nutrition of the patient."

It will thus be seen that from the same mineral waters, taken under the judicious and skilled advice of the eminent local physicians, different effects in different people are produced. Stout and pasty faced individuals being reduced in weight, while they at the same time are regaining elasticity and power ; and weakly sallow patients making flesh and weight and having their colour and freshness restored, results which a careful observer can see for himself in his daily walks to and from the wells.

If such were the effects of the waters, who were the patients ? from what ailments did they appear to suffer and did the Homburg waters seem to do them good ? Homburg in the height of its season may be said to be an off-shoot of Hyde Park, London. Royal princes, eminent statesmen, great generals, famous literary men, beautiful young women from England and America, many there for restoration to health, many for amusement, pleasure, and adventure. Officers with sallow complexions and big livers from India, and dyspeptics from every clime. Married but barren women anxious to have children, and young unmarried girls and women suffering from uterine disturbances of various kinds, all swelling the number of visitors to 10,000 or 12,000, in the season which begins in June and ends about the 15th of September. It may be added here, however, that arrangements of a very perfect kind are made for treating patients during the winter as well.

Dr. Will, one of the resident physicians of Homburg, a gentleman who, like all his professional brethren in the town, speaks our language fluently, says that the diseases for which the mineral waters are specially applicable, are :—(1) Those of

the liver, digestive and genito-urinary organs; and (2) gout, obesity, chlorosis, anaemia, sequelæ of malaria, and skin diseases, such as psoriasis and eczema." The therapeutic effects of the springs are greatly enhanced by the use of the mineral baths; the waters pass directly from the wells to the bath-rooms, and are not exposed to the atmosphere. They are heated by steam passing between the double walls of the bath. As the waters used contain a large quantity of carbonic acid and iron, they may be said to be effervescent. They are highly tonic, and I can say, from experience, are really delightful and invigorating. Baths seemed to be greatly patronised by English and American visitors. It did not appear to me that the baths were taken advantage of by either French or German visitors. The fashionable baths were the pine-oil baths, said to be a speciality of Homburg. Pine forests are numerous on the Taunus Mountains, which almost surround Homburg. The leaves of the pine trees, by distillation, yield a pine oil full of delightful aromatic fragrance. To the warm effervescent mineral water is added several ounces of this pine oil, which is mixed with the water till it becomes frothy. The patient remains from twenty minutes to half an hour in the bath. Nervous irritability and muscular rheumatic pains are greatly relieved by this agreeable bath.

Of the purely mineral baths, their uses and effects, I cannot speak from experience. They seemed, however, to be fairly patronised by the lady visitors. Early to bed and early to rise, is the motto of physicians and visitors at Homburg. It will rather surprise you to learn that Drs. Dietz, Hoeber, and Will begin their consultations at seven o'clock in the morning, and the visitors their treatment. It is the practice of all who go to Homburg in search of health, to consult one of the local physicians. I found that, after a careful and exhaustive diagnosis was made out, directions as to the quantity and kind of mineral water to be taken were noted down, and by and by, sent to your hotel. There were also dietetic directions, what to eat and what to avoid, which were extremely valuable. I noticed, however, that in almost every case, so far as I could form an opinion, at the table d'hôte, that the wine of the country was not contraindicated. Between 6 and 7 A.M. the various avenues leading to the wells are thronged with people of every age and every nationality. Arriving at the Elizabeth Well, as is here represented (shown photograph of the well, containing portraits of many of the distinguished visitors, by the celebrated photographic artist, M. Huff), the

water is handed to the visitor in a little graduated glass, 6 ounces at a time. The dose for adult males is from 16 to 18 ounces, and that for females about 12 ounces. Between each dose a quarter of an hour is allowed to elapse. In that quarter of an hour the visitor promenades up and down the beautiful avenue of lime trees, while a string band of musicians discourses magnificent music. The band usually begins sharp at 7 with a hymn, frequently one of Luther's, with which the English visitors are more or less familiar. One well known hymn (Bishop Heber's) which was often played, and which seemed to give great delight, began with the beautiful words:—

“Holy, Holy, Holy! Lord God Almighty!
Early in the morning our song shall rise to Thee,” &c.

a hymn with which you gentlemen are all familiar.

By nine o'clock the avenues are empty, not a soul to be seen, all is still and peaceful, the wells are deserted, the girls who serve out the waters have gone to their homes, there is no sound to be heard in the neighbourhood of the Elizabeth spring but that of the bubbling water. The visitors have gone to their hotels or private lodgings.

The breakfast consisted principally of coffee and rusks, with possibly an egg, and little or no butter.

After breakfast the mail arrives, letters and newspapers from home are carefully read, some of the gentlemen visitors passing their time smoking on the verandah up till nearly noon.

With many the waters act as an aperient—a full, copious, watery, painless evacuation, having often a dreadful odour, presenting itself about an hour after breakfast. With others the action of the waters is eminently diuretic. In the case of females and others suffering from anaemia and general debility, the effect of the chalybeate waters of the Luisen spring is markedly tonic and invigorating.

Mid-day finds the visitor enjoying a mineral bath, and thereafter, with the keenest and sharpest of appetites, a hearty hot lunch or second breakfast in English style of cookery is done full justice to, either in the Kursaal or in one of the many restaurants of the town.

After lunch a drive may be taken to the pine forests or into Frankfort, to visit the palm gardens and wonderful sights of that ancient city. About five o'clock the visitors are again at the wells, the chalybeate Luisen spring and the effervescent waters of the Ludwig being the most popular. After dinner

the grand promenade in the Kursaal is an immense enjoyment. Everybody is there listening to the music of the military and other bands, and the entertainment is occasionally varied and added to by a display of fireworks. By half-past ten Homburg is asleep.

The course of the treatment extends usually over twenty-one days. By the seventeenth or eighteenth day of the waters the system seemed to be saturated with the ferro-salines of the springs, and a feeling of lassitude and something of debility began to be experienced. Dr. Dietz directs that at this stage the dose should be gradually diminished, and finally stopped by the twenty-first day.

The waters of Homburg certainly produce wonderfully curative results. The benefits, however, may not at first be very apparent, and there possibly may be a feeling of disappointment in the minds of some that the course of treatment has done more harm than good. It is important to observe, however, that in a short time, a few weeks or more, a return to health and strength will restore confidence in the value of the waters, and when another season comes round, there comes with it a longing desire to return to Homburg.

On the tiled pavement of the Elizabeth Well, which is there shown you photographed with its gay surroundings, there is a text from Ecclesiasticus,* “The Lord has created medicines out of the earth ; he that is wise will not abhor them.”

In answer to some questions † put by some of the members of the Society, Dr. Dunlop said that from his own personal experience he could bear ample testimony as to the beneficial results obtained from a systematic course of treatment at Homburg, and he recommended, with much confidence, his professional brethren, not only to visit Homburg, but to advise their patients to try a course of treatment there. He also stated that the passports regulations of Germany do not apply to Scotch or English visitors to Homburg. No passports were needed anywhere in Germany or France. English gold, or Bank of England notes, are received everywhere, and the English sovereign is worth twenty marks—the equivalent to our shilling in German coinage—and some coins like our pence in addition.

It certainly is of immense advantage to the traveller on the Continent to know something of French or German, but the

* *Apocrypha; Eccles., xxxviii, 4.*

† Reported by the Editorial Secretary of the Glasgow Southern Medical Society.

English visitor to Homburg, who knows no other tongue than his own, may have no fear whatever, as our language is taught in most schools throughout the country, and in Homburg during the season English is the language of the people, and English gold the current coin. Living quietly in lodgings is by no means costly, not more so than at any of our own coast places or hydropathic establishments. Private lodgings can be obtained at from ten to sixty shillings per week—about the same price for rooms as in Rothesay or Bridge of Allan. The hotel charges are a little less than those of first-class hotels in our country.

It may be said that much enjoyment can be obtained in Germany at a very trifling expenditure.

The up-keep of the beautiful gardens and well laid out avenues, the wells and their waters, the music every morning and evening, the use of the magnificent apartments of the Kursaal, are all defrayed by the Kur tax of a sovereign, collected by the municipal authority, upon each visitor who remains over three or four days in Homburg. Medical men and their families, however, are exempt from this tax, and any member of our Medical Society visiting Homburg will receive a kindly greeting from Drs. Dietz, Will, Hoeber, and the other professional gentlemen of the town.

CURRENT TOPICS.

BRITISH MEDICAL ASSOCIATION— THE GLASGOW MEETING.

OUR readers are aware that the British Medical Association meets in Glasgow in the second week of this month. Preparations have been going on during the last twelve months, and everything promises a very successful meeting.

The addresses and meetings of sections will be held in the buildings of the University, where also the Annual Museum will be placed.

The meetings will be fitly inaugurated by a service in the Cathedral, conducted by the eloquent Principal of the University (Dr. Caird) and Dr. Burns.

The addresses will be given by the President, Dr. W. T. Gairdner; by Dr. Clifford Allbutt, of Leeds, on Medicine; by Sir George Macleod on Surgery; by Dr. William Macewen on his recent surgical investigations; and by Dr. M'Kendrick

on Physiology. With the exception of the last the addresses will be delivered in the Bute Hall, while Dr. M'Kendrick, with a view to illustration of the more recent methods in Physiology, will take advantage of the arrangements in the Laboratory and Class Room of Sir William Thomson.

The sectional meetings will be held in the class rooms of the University, and a large amount of work is promised by men whose names are prominent in the various departments of medicine. There will be discussions in most of the sections, some of them regarding topics of wide general interest. Amongst these we may mention the subjects of Rickets, Diphtheria, Syphilitic Diseases of the Nervous System, Antipyretics, the Treatment of Access of the Lungs and Empyema, Perforation of the Mastoid portion of the Temporal Bone, Intra-uterine Death, &c. The papers also cover a very wide field, and the list of speakers is a very long one.

The Annual Museum promises to be exceptionally large and attractive both as regards the general exhibits and the pathological specimens. The large Examination Hall at the University was assigned for it; but this being found much too small, Professor Young's Laboratory, in the ground floor of the Hunterian Museum, has been added, thus nearly doubling the accommodation.

We regret to observe that the number of foreigners who intend to be present at the meetings is rather small. We have a number of Americans, but very few Germans or Frenchmen. We understand that many invitations were sent out, but the multiplication of scientific congresses and the attraction of holiday resorts have seriously reduced the number of those who have been able to accept them.

The Entertainments form an exceptionally attractive feature in the meetings. There will be conversazioni by the University and by the Corporation, the former in the University buildings and the latter in St. Andrew's Halls. There will be a garden party in the Botanic Gardens by the Faculty of Physicians and Surgeons, and there will be the usual dinner of the Association in St. Andrew's Halls. In addition to these the Executive of the Exhibition will receive the members in the Picture Galleries of the Exhibition on one of the early days of the meeting.

Glasgow is very favourably situated for Excursions, which, as usual, will occupy the Saturday of the week of meetings. These excursions are planned to occupy the whole of Saturday, so that members can return to town the same evening. There are no less than eight different tours which the members may

choose from. These are—Ayr and the Land of Burns, Lanark and the Falls of Clyde, the Perthshire Highlands, Callander and the Trossachs, Arran, Stirling Bridge of Allan and Dunblane, Rothesay and the Kyles of Bute, and Loch Lomond. In all, accommodation is made for 1,050 excursionists, and all that is needed is fine weather to make them enjoyable.

It will be agreed that there is every promise of a most successful gathering. We believe that many of our southern colleagues will be astonished at the size and efficiency of our arrangements for teaching medicine in Glasgow, while the teaching body here, as well as the profession at large, can hardly fail to be benefited by personal contact with the leading spirits of the profession in the country at large.

We bespeak for our professional brethren a cordial welcome to our city, and we have every confidence that they will be hospitably entertained by our local members.

ROYAL COLLEGES OF PHYSICIANS AND SURGEONS, EDINBURGH, AND FACULTY OF PHYSICIANS AND SURGEONS, GLASGOW.—The Quarterly Examinations in Edinburgh for the Triple Qualification took place in July, with the following results:—

First Examination.—Of 49 candidates, the following 35 passed:— Philip Dansey Addis, Bristol ; Clifton Sturt, London ; Joseph Welsh, Newtownbutler ; Henry Taafe, Londonderry ; John Cuthbertson Walker, Helensburgh ; William Daunt, Dublin : Robert Phillip Cooke, County Roscommon ; Wilfred Jameson, Carlow ; Edward M'Carthy, Kinsale ; Daniel John O'Mahony, Cork ; George Bridgeford Proctor, Birkenhead ; Francis Weatherdon Toms, London ; John Timothy Buckley, County Kerry ; Alfred Jackson, County Cork ; Thomas William Clay, Anglesea ; Penry Foster James, Glamorganshire ; Arthur Thomas Kember, India ; Horace Allonby Smit, Cape Colony ; Charles Howard Roberts, Cape Colony ; Frederick John Bonnalie, Chester ; Thomas William Edward Waddington, Blackburn ; Samuel Haldane Heald, Wakefield ; Angus John Macdonald, South Australia ; John Joseph Brennan, Kilkenny ; Andrew Lees Smith, Hamilton ; Thomas Joseph Frost, County Clare ; Lionel Selfe Wells, Australia ; John Cumming, Banffshire ; Philip Graham Findlay, Nairn ; John Warburton Wilkinson, Queen's County ; Thomas Peter Wells, Blackburn ; Maurice Joseph Hickie, Castletownroche ; Edward Hughes, Wales ; John Francis Butler-Hogan, Dunmanway ; David Samuel Browne, Mullaglass.

Second Examination.—Of 59 candidates, the following 33 passed:— Nathaniel Henry Runciman, Cork ; John Dunne, County Cork ; Edmond William St. Vincent Ryan, Cork ; John Francis Roden, Edinburgh ; Richard Patrick Byrne, Cork ; Gordon Traforde Tuke, Edinburgh ; Simon Ryan, Armagh ; Clifton Sturt, London ; Albert

Edward Wynne, Stafford ; Joshua Hamilton Hart, Yorkshire ; Robert Love, County Antrim ; Miss Beatrice Mary Harrison, Brighton ; James Downie Watt, Leamington Spa ; Vernon Francis Allen, County Cork ; Philip Dansey Addis, Bristol ; Richard Fitzgerald, County Cork ; Paul Madden Sheedy, County Cork ; William Brough Arthur, Dundee ; Frederick Charles Foster, Canterbury, New Zealand ; Ernest Victor Eames, Donegal ; David Illyd Jones, South Wales ; Arthur Edmund Shepherd, Adelaide ; Alexander Vincent Bowen, Preston ; James Henry Syme Grant, Dunfermline ; Albert Edward William Burns, Chatham ; Frederick Albert Capps, Portsmouth ; William Johnson, Langley, County Waterford ; Patrick Francis O'Hagan, Longford ; John Francis Butler-Hogan, Dunmanway ; Jeremiah Barry, Castletownroche ; William Cornelius Rainsbury, Queenstown ; John Robert Mason, Lancashire ; Percy Stainsby, Yorkshire.

Final Examination.—Of 60 candidates, the following 30 passed, and were admitted L.R.C.P.E., L.R.C.S.E., and L.F.P. and S.G. :—Thomas M'Cubbin, Kirkintilloch ; David Scott Moncrieff, Edinburgh ; Gilbert Gordon, Ontario ; Joseph Adam Nolan, Kilkenny ; Thomas Everard, India ; Richard Griffith, Carnarvon ; John Richard Haigh Dyson, Honley ; William Wendt Margenout, Colombo, Ceylon ; Charles Barrie Taylor, Manchester ; Miss Lilian Agnes Hester Jenkins, Tenby ; Rupert Wilberforce Clayton, Wrexham ; Lucien Milbourne Clark, Kingston, Jamaica ; Nathaniel Henry Runciman, Cork ; Robert Trimble, Strabane ; William Dwyer Russell, County Tipperary ; Thomas Sprot Allan, Glasgow ; Alexander Lang Murray, Belfast ; Newton John Newbould, Toft ; Charles Albert Wickham, County Longford ; John Henry Briggs, Yorkshire ; Charles Edward Lownds, Newcastle-on-Tyne ; Charles Pearce, Santiago, Chili ; Andrew Davidson, Bangor, County Down ; Alfred Dorriforth Vardon, Calcutta ; Marius François Xavier Nallitamby, Mauritius ; Edward Treharne, Glamorganshire ; Harry Evelyn Mahonie, Sheffield ; William Keiller, Midlothian ; William Joseph Ryan, Limerick ; and Walter Halliburton Macdonald, Inverness-shire.

UNIVERSITY OF GLASGOW—LIST OF DEGREES CONFERRED ON
26TH JULY, 1888 :—

Doctors of Medicine (M.D.)—I. *Commended for Thesis.*—David Finlay, M.B., C.M., Scotland (*Thesis*—“Clinical Observations on Epileptic Insanity”) ; Charles Macpherson, M.B., Scotland (*Thesis*—“Plural Pregnancies”) ; William Wallace, M.B., C.M., Scotland (*Thesis*—“The Field of Vision: with special reference to its Anomalies in Diseases of the Nervous System”).

II. *Ordinary Degree.*—Archibald Spiers Alexander, M.B., C.M., Scotland (*Thesis*—“Nasal Polypus, and its Radical Treatment by Galvanic Snare”) ; Samuel Philip Alexander, M.B., C.M., Scotland (*Thesis*—“The Atmosphere and Disease”) ; Thomas Jackson Grime,

M.B., C.M., England (*Thesis*—"Goitre: Its Aëtiology and Frequency in the Northern Division of the Yorkshire Dales"); Robert Horn, M.B., C.M., Scotland (*Thesis*—"Midwifery Practice in Lancashire"); John Keay, M.B., C.M., Ireland (*Thesis*—"Some Features of Modern Asylum Practice"); James Kennedy, M.B., C.M., Ireland (*Thesis*—"Puerperal Eclampsia, considered in connection with Albuminuria: Treatment"); James Kerr Love, M.B., C.M., Scotland (*Thesis*—"The Limits of Hearing"); Henry Mason, M.B., C.M., England (*Thesis*—"Phimosis"); James Maxwell, M.B., C.M., Scotland (*Thesis*—"Clinical Notes, with Remarks"); David Clark Muir, M.B., C.M., Scotland (*Thesis*—"Puerperal Fever: its Causation and Prophylaxis").

Doctor of Medicine (M.D.) and Master in Surgery (C.M.) Old Regulations.—Donald Munro, Scotland.

Bachelors of Medicine and Masters in Surgery (M.B. and C.M.)—
 I. *High Commendation.*—Landel Rose Oswald,* Scotland; John Freeland Fergus, M.A., Scotland.

II.—*Commendation.*—Hugh Hight, Scotland; Thomas Kirkpatrick Monro, M.A., Scotland; Henry James Younger, M.A., Scotland; John McCubbin Johnston, M.A., Scotland; Alexander Blair, Scotland; James Stevenson, Scotland; John Paterson Gillespie, England; William Muir, Scotland; John Adams, Scotland; Hugh Jones, Wales; John Smith, M.A., Scotland; Henry Leslie Graham Leask, Scotland; James Aimer Thoms, Scotland; Randolph Owen Willis, England.

III.—*Ordinary Degree of M.B. and C.M.*—John Adam, Scotland; James Aitken, Scotland; Wm. Menzies Alexander, M.A., B.Sc., Scotland; William Edlund Lawrence Allen, England; Archibald Auld, Scotland; William Auld, Scotland; Robert Banks, Scotland; Gilbert Alexander Bannatyne, Scotland; Thomas Crawford Barras, Scotland; Matthew Beattie, Scotland; Thomas Low Blackburn, Scotland; Matthew Blair, Scotland; Matthew Henry Bland, England; John Finlay Boa, Scotland; Thomas Mitchell Bonar, Scotland; James Paton Boyd, Scotland; Michael Aloysius Boyle, Ireland; Robert Charles Brodie, Scotland; Alexander Buchanan, England; Robert MacNeil Buchanan, Scotland; Finlay Stewart Campbell, Scotland; John Charles, Scotland; James Cook, Scotland; Andrew Copland, West Indies; Herbert Osborne Cowen, England; Hedley Robert Vicars Crossfield, England; James Culross, M.A., Scotland; William John Daly, Ireland; Andrew Davidson, M.A., Scotland; William Diamond, Scotland; John Donald, M.A., Scotland; William Campbell Downs, Scotland; John Cunningham Duncanson, Scotland; Archibald Galbraith Faulds, Scotland; Donald Fergusson, M.A., Scotland; Peter Fergusson, Scotland; Harry Findlay, Scotland; Charles James Fyfe, Scotland; Edward Henry Fyffe, Australia; Peter Gardiner, Scotland; William

* Mr. Oswald gains the Brunton Memorial Prize of Ten Pounds, awarded to the most distinguished Medical Graduate of the year.

Gemmell, Scotland ; William James Giblin, England ; Hugh Girvan, Scotland : Andrew Halliday, Scotland ; William Cowan Hamilton, Scotland ; James Ewing Hunter, Ireland ; Thomas Brown Hutcheson, Scotland ; Adam Brown Kelly, B.Sc., Scotland ; Hugh Kirkland, Scotland ; Ebenezer Lang, Scotland ; John Livingstone, Scotland ; William Livingstone, Scotland ; John Mathie, Scotland ; William Henry Murray, Scotland ; James Findlay Duncan Macara, Scotland ; John Neil Macarthur, Scotland ; Duncan M'Callum, Scotland ; John Stewart M'Conville, M.A., Scotland ; Andrew Nicholson M'Gregor, Scotland ; John M'Kendrick, Scotland ; Kenneth Child Mackenzie, England ; Robert Dunbar Mackintosh, Scotland ; John Thomson MacLachlan, Scotland ; John MacPherson, Scotland ; Charles Ritchie Niven, Scotland ; Frederick Laing Norris, Scotland ; Thomas Lewis Paterson, Demerara ; Robert Lachlan Pinkerton, M.A., Scotland ; William Primrose, Scotland ; David Ramsay, Russia ; William Robb, Scotland ; Charles Edward Robertson, Scotland ; William Roxburgh, Scotland ; John Sandilands, M.A., Scotland ; William Pettit Sandilands, Scotland ; Alexander Shanks, Scotland ; Robert Plenderleith Shearer, Scotland ; Hugh Rodger Sloan, Scotland ; John Turnbull Smith, Scotland ; John Somerville, Scotland ; James Allan Stewart, Scotland ; James Strang, Scotland ; Angus Falconer Walker, Scotland ; Joseph Brownlie Wallace, Scotland ; James Pollock Wilson, Scotland ; Robert Wilson, Scotland ; Andrew Struthers Wotherspoon, Scotland ; John Wright, Scotland ; James Young, Scotland.

REVIEWS.

Transactions of the American Surgical Association. Edited by J. EWING MEARS, M.D., Recorder of the Association. Vol. V. Philadelphia : P. Blakiston, Son & Co. 1887.

THIS volume, like those which have preceded it, contains a number of valuable contributions to the science and art of surgery. Like its predecessors, also, it indicates the good work which is transacted by the Association.

After the address of the President upon the value of co-operative work in Surgery, the volume opens with three papers on the subject of supra-pubic cystotomy by Drs. Dennis, Packard, and Vanderveer respectively. That by Dr. Packard is a particularly exhaustive one, and enters at considerable length into the history of the operation. Appended to this paper is a very complete and useful bibliography. Dr.

Vanderveer is somewhat wider in his dealing with the subject, as under the heading of Classification of calculi for operation, the relative value of methods other than that of supra-pubic cystotomy is discussed.

"The process of repair after resection of the intestine and intestinal suture" forms the text of a paper by Dr. J. Collins Warren. Numerous experiments were made upon dogs; portions of intestine were resected and the continuity of the bowel completed by suture. The following different stages in the process of repair were observed. First, a thickening of the outer or peritoneal layer which covers in the wound even in the mildest forms of reparative inflammation. When the reaction is stronger, adjacent layers of peritoneal tissue are called into aid in protecting the wound. All these external changes subsequently disappear, to a greater or less extent. The mucous coat unites readily, but not completely until the suture is cast off, which event probably occurs about the end of the third or fourth week in the continued suture, and much earlier in the interrupted suture. The repair of the muscular coat is slower still, and is not probably complete earlier than the sixth month.

Dr. Charles B. Nancrede discusses the question as to whether or not laparotomy should be done for penetrating gunshot wounds of the abdomen involving the viscera. The subject is treated rather from a medico-legal point of view, it having been suggested to the author through the facts arising out of a famous murder trial, where the counsel for the defence asserted that the examination of the track of the ball by a probe in a penetrating gunshot wound of the abdomen had turned the scale toward a fatal issue. The tendency of the present day to indulge in the most active interference finds support at the hands of the author; limited, however, by the skill and experience of the surgeon. As expressed by the author—"When a skilled operator cannot be secured in exceptionally favourable cases the attempt may be made, 'and succeed,' but most cases will do better left to nature than operated on by a bungling surgeon, who, from the nervousness induced by inexperience, will, in his hurry, overlook wounds or some of the essential details of aseptic abdominal surgery."

Drs. Kinloch and Keen follow with two other papers upon the same subject, based in each instance on a case coming beneath their own observation.

With considerable care and clearness Dr. Samuel Gross manipulates a series of 92 cases of sarcoma of the mamma; and the results derived from a close scrutiny of these cases

afford very profitable material for reflection. Dr. Hayes Agnew, in a paper entitled "Medico-legal aspects of cranial and heart wounds," raised an interesting discussion on the question of the possibility of a man being able first to shoot himself in the head and then through the chest (heart), and *vice versa*. After a careful investigation of the subject, the author concludes by stating that either mode of double suicide is possible.

Another interesting discussion was raised by Dr. Louis Tiffany on the "Comparison between the surgical diseases of the white and coloured races." Some of the conclusions arrived at—although not completely in accord with those who subsequently discussed the paper—were the following :—(1) Surgical affections pursue different courses in the white and coloured races under identical hygienic surroundings. (2) Surgical injuries and operations are better borne by negroes than whites. (3) Surgical diseases involving the lymphatic system, especially if tubercular, are more fatal in negroes than in whites. (4) Congenital deformities are more rare in negroes than in whites. (5) Surgical differences observed between whites and negroes are due to race peculiarities."

As the result of a large number of experiments on dogs, Dr. B. A. Watson discusses the value of puncture of the heart in cases of chloroform narcosis. In 22 cases out of 60, where the heart had absolutely ceased to perform its functions, the organ was aroused into action by the needle puncture.

Some short remarks on a case of macroglossia are contributed by Dr. Dunot.

The important subject of Vaginal Hysterectomy is briefly, though clearly, discussed by Dr. Ford Thompson. Two cases operated on by the author are reported, the one a failure, the other successful.

Short papers on two cases of aneurism are contributed by Dr. Richardson: the one, a case of subclavian aneurism, after treatment by three methods—first, constitutional; second, direct pressure; third, introduction of surgical pins, subsequently succumbed to septic mischief; the other, a femoral aneurism, was cured by elevation and flexion of the limb.

A particularly abrupt and "jiggy" paper—if we may be allowed the expression—is written by Dr. David Prince on the "Aseptic and Antiseptic Management of Wounds." The subject is evidently treated solely from one point of view, and that with the object of explaining a device for sterilising air by passing it through cotton wool. The idea is an old one, and the practice not new. The method, however, of carrying

it out on a large scale is ingenious, and the author has fortunately added a diagram to elucidate a not very clear text.

A successful case of Splenectomy for wandering spleen is reported by Dr. James McCann, and is made the theme for a discussion of the whole subject of removal of the spleen for whatever cause. A very serviceable table of published cases of operations for extirpation of the spleen which have been performed since July, 1881, is appended.

A new Kolpoplastic operation is described by Dr. Penger, and to be clearly understood needs to be read in conjunction with the diagrams given. It consists essentially in freshening the vaginal parts and applying to wall so bared two skin flaps, obtained, one on each side, from the *Labia Minora*.

The Science and Art of Surgery: A Treatise on Surgical Injuries, Diseases, and Operations. By JOHN ERIC ERICHSEN, F.R.S., LL.D. (Edin.), &c. Revised and edited by MARCUS BECK, M.S. and M.B. (Lond.) Vols. I and II. Ninth edition. London: Longmans, Green & Co. 1888.

ALTHOUGH it is thirty-five years since the first edition appeared, this admirable work still ranks as one of the best text books on English surgery. With an interval of less than four years since the issue of the last edition little need be said of the favour and esteem in which the book is still held by the profession, and it needs no close scrutiny to see that whatever of value either in the principles or practice of surgery has been added to the science during that interval, has not escaped the observation of the able editor, Professor Beck.

By a careful elimination of such matter as has become practically obsolete, the introduction of recent advances either in the pathology or practice of surgery has not entailed any very appreciable increase in its bulk. The book already is of a considerable size, containing in all upwards of 2,500 pages. To increase, therefore, its bulk would tend to lessen its value as a text book for students, who already are far too frequently tempted to indulge in books framed more out of consideration for the pupil's pocket than for his intellectual improvement.

The book is too well known to need any extensive review in detail. Both the author and the present editor are so well respected in the profession that there is little call for any criticism; and if our notice is a short one it is not the less cordial and commendatory.

A Text Book of Biology. By J. AINSWORTH DAVIES, B.A.
London : Charles Griffin & Co. 1888.

WHETHER this book, which has been "designed more especially to meet the requirements of the intermediate science and preliminary scientific examinations of the London University," has attained to the standard of a comprehensive work there may be more than one opinion. The author is peculiarly unhappy in selecting in his preface the phrase "Theoretical" Biology for the book he has prepared, as if the students who are candidates for London and other degrees are not sufficiently well primed in the theory already. Besides, there is no such science as *theoretical* Biology, as Biology is nothing if not practical. Notwithstanding this threshold defect, Mr. Davies' book is not without its merits. It comprehends in a handy compass an amount of information which degree seekers will welcome; and the list of questions likely to be asked at examinations, which is given in the appendix, will be appreciated by that class as tending to lighten their labours. The tendency to provide short cuts for the tyro is further illustrated by the index-glossary which furnishes the meanings of the chief technical terms. This method, it is to be feared, can only help to crush the intelligent appreciation of the student as to what these terms denote by supplying candidates with what they ought to ascertain from their practical work, their text books, and the sources from which the nomenclature is derived.

The first part of the book, following an introduction dealing with questions common to all organisms, treats of vegetable morphology and physiology, while the second portion is devoted to the form, structure, and physiology of selected types of animals. Each organism is viewed from the standpoint of (1) the morphologist, (2) the physiologist, and (3) the embryologist. The arrangement of the letterpress on animals, by means of which separate paragraphs are given to the different sets of organs, and the points to be noted in these are printed in different type from the general description, will rivet the attention of the reader, and the general histology of the organs following the description of the organs themselves will conduce to the proper understanding of the anatomy and physiology of the organs. The chapters at the end of the first and second parts into which the book is divided, on the comparative anatomy and physiology of vegetables and animals respectively, exhibit in outline the successive advance in

physiological division of labour, and in morphological differentiation which the higher present on the lower forms. These short chapters focussing the salient points will undoubtedly help to remedy the too exclusive adherence to the type system which prevails in some examination systems, but the unity which prevails in the fauna and flora of the globe might be more clearly manifested if these general chapters had been greatly extended. The descriptions in the text are, so far as they go, accurate, and the information conveyed in the small compass is most full. The volume is literally packed with information, and, so long as London University demands only a knowledge of the types here given, will be found eminently useful.

Augenheilkunde und Ophthalmoskopie. DR HERMANN
SCHMIDT-RIMPLER. Berlin, 1888.

THE volume before us is one of a series of manuals on special subjects published by Friedrich Wreden, of Berlin. This is the third edition, and as the first appeared so recently as 1884, we may expect to find that the work has special merit as a text-book of ophthalmology. In this expectation we are not disappointed. The book is, in our opinion, admirably adapted for practitioners and students.

Any one who in those times undertakes to write a new text-book of ophthalmology must have great difficulty in selecting his material. It is no easy matter to separate the essential from the non-essential; to select from the immense mass of information at the author's disposal those facts and propositions which may be supposed to be of interest to most practitioners and to students from those which, however important in themselves, are of interest chiefly to ophthalmologists. In this selection we think Dr. Schmidt-Rimpler has been very successful. The book is by no means exhaustive—it cannot possibly be so in the space of some 640 pages—but it gives a good all round view of the subject.

The book opens with a short account of the methods of examining an eye, and with a few general remarks on the treatment of its affections. Then follows an admirable chapter on the anomalies of refraction and accommodation. We are glad to find that this subject is dealt with almost at the very outset. Landolt has well said that the large majority of patients who consult an oculist have some defect either in their refraction or accommodation, or in both. Hence the sooner a student

becomes acquainted with this essential of ocular therapeutics, the more rapid will be his progress. A simple chronic catarrh may be, and in very many cases is, the expression of an overstrained accommodation or an uncorrected astigmatism. Hence in the treatment of such a condition it is essential to be able accurately to diagnose the disease, and, of less importance, to be able to prescribe lotions, ointments, or drops. Dr. Schimdt-Rimpler gives no long demonstrations; he contents himself with enunciating formulæ, and by showing their application.

In discussing the various forms of ophthalmoscope, our author mentions all the common varieties. He also mentions several which are not usually described in ordinary text-books. Thus, we have brought under our notice the instruments invented by Coccius and Zehender, as also a form of ophthalmoscope made with a right-angled prism. In this last advantage is taken of the angle of total refraction, and thus an instrument is made which is useful in certain special circumstances.

The chapters on muscular insufficiency, and on defects of the extrinsic muscles of the eyeball, seem also to be very good. The weak side of the book appears to be the surgical. A great deal, it seems to us, has been left out in speaking of operations on the eyelids, and more especially in speaking of abnormalities of the eyelids, which, in our opinion, ought to have been said. The details of such operations as are described are very meagre, and many operations which are recognised as being very valuable in such conditions receive no mention. The same remark also holds true, although to a less degree, of the section dealing with cataract operations. We think that fuller details might have been given with great advantage to the book. Apart from these faults, however, we think the book carefully done, and a book which German-reading students will peruse with profit.

Elements of the Comparative Anatomy of Vertebrates. By R. WIEDERSHEIM. Translated by W. A. PARKER. London and New York: Macmillan & Co. 1886.

PROFESSOR PARKER has done a service to the student of comparative anatomy in making this short work of Professor Wiedersheim more serviceable to those who are not skilled in German. This work is an English rendering of the smaller of Professor Wiedersheim's books on this subject—viz., the

Grundriss. Undoubtedly, Professor Wiedersheim's *Lehrbuch*, of which the *Grundriss* is an abridgment, is our best modern text book of vertebrate anatomy. The *Grundriss* proceeds on the same plan as the larger work, and begins with a chapter on the development of the primitive layers from the ovum. The succeeding chapters are devoted to the systems of organs and structures formed from the epiblast, mesoblast, and hypoblast, and the main points are illustrated by a liberal use of well executed drawings and diagrams. The arrangement whereby, *e. g.*, the skeletal structures in fishes, amphibians, reptiles, birds, and mammals are treated of leaves little to be desired. First, the integumental skeleton of the different classes is followed by the description of the vertebrae of each class in turn, so that the various modifications which one group exhibits as contrasted with those of the class placed by common acceptance immediately above is quickly brought into review. In this way a perfectly logical method of comparison is followed, and diversities and gradual complication in structures are accentuated.

The electric organs of fishes have now been placed in their proper position between muscles and nerves, the organs being modified muscular bands richly supplied with nerves. A classified list of the papers and treatises on vertebrate anatomy is appended, which will be very valuable to those who wish to consult the original sources of information. Though the *Grundriss* alone has been translated, and well done too, there is room still for a translation of the *Lehrbuch*.

Laryngoscopy and Rhinoscopy in the Diagnosis and Treatment of Diseases of the Throat and Nose. By PROSSER JAMES, M.D. Fifth Edition. London: Baillière, Tindall & Cox. 1888.

As it now stands, this work is an excellent guide to the study of disease of the upper part of the respiratory tract. The fact that it has gone through four editions within the short period of three years is sufficient to show its popularity. As is the case in most of the recent manuals, considerable attention has been given to rhinoscopy, and in this edition the chapter has been re-written. We can thoroughly recommend the work to the profession, and feel confident it will be as successful as its predecessors.

MEETINGS OF SOCIETIES.

GLASGOW PATHOLOGICAL AND CLINICAL SOCIETY.

SESSION 1887-88.

MEETING XIII.—14TH MAY, 1888.

DR. JAMES FINLAYSON, *President, in the Chair.*I.—CASE OF SARCOMA OF THE FRONTAL BONE INVOLVING THE
RIGHT ORBIT.

BY DR. THOMAS REID.

D. S., *æt.* 12 years, came to the dispensary of the Glasgow Eye Infirmary, on the 16th of January, 1888, suffering from a tumour on the forehead above the supra-orbital region, nearly midway between the frontal sinuses. The tumour appeared as a slight elevation from the frontal bone, and gave the feeling of fluctuation. It was noticed about two months previously.

A second tumour, about the size of a cherry, elastic in consistence, is situated on the inner half of the right upper lid. It is movable, and is said to have followed the other after the application of blisters, *i.e.*, about a month after the tumour on the forehead appeared.

2nd April.—The tumour on the forehead now involves the right frontal eminence and is increasing in size. It shades off towards the outer side of the brow, and a sharp ridge of bone is felt here, like callus following a fracture. The tumour on the upper lid is increasing in size and is purple in colour.

An exploratory puncture made through the frontal tumour parallel to the plane of the bone failed to detect anything. No haemorrhage occurred.

20th April.—On making an ophthalmoscopic examination to-day, both nerves are found to be in a state of acute inflammation, especially at their lower and outer sides. The veins are greatly swollen. The refractive condition of the disc and macular region shows that the former is raised up above the surrounding retina to the extent of one mm. Vision of L. is good, of R. somewhat diminished. There is no hemianopia.

Drs. Buchanan and Macewen have both examined the case, and are of opinion that the growth is sarcomatous. It is

now about $3\frac{1}{2}$ inches in length horizontally, and about $1\frac{1}{2}$ vertically, while it projects from the forehead for the distance of about an inch.

30th April.—Eight days ago discharge began to appear from the right ear, the acuteness of hearing of which is reduced to $\frac{4}{10}$ while that of the left ear is $\frac{8}{10}$.

The sense of smell is unimpaired, and there is no obstruction of either nasal passage.

II.—A CASE OF MULTIPLE ANEURISM.

By DR. JAMES DUNLOP.

Mrs. S. K., æt. 66, housewife, was admitted into the Royal Infirmary on the 19th March, 1888, complaining of a pulsatile tumour in the right subclavicular region and of pain and loss of power in the right arm.

The patient has never been a particularly strong woman, but has always been free from any serious illness. For the past two years she has complained of great weakness, and during the last five months has been confined altogether to bed. Five years ago she became blind in the left eye from cataract, and two years later the disease affected the right eye also. Both were operated upon but with little effect.

The patient can give no reason for the appearance of the swelling beyond the fact that up to two years ago, when the debility set in, she had always a great deal of heavy work to do in the way of washing, &c. There is no history of specific disease, and her habits have always been strictly temperate. The first thing she noticed was a great pain in the right shoulder, which she attributed to rheumatism. This was about nine months ago, and a month or two afterwards a small swelling appeared in the right subclavicular region. About this time she became subject to an attack of purpura haemorrhagica. The swelling gave rise to great pain both at the part and down the arm, and gradually increased in size. Five months ago she noticed a second swelling in the right thigh, which also caused her some pain, and increased gradually in size. About this time she became so weak that she had to confine herself to bed entirely. Two or three months ago she became conscious of a continual pulsation in her abdomen, and she began also to suffer from severe pains down the spine.

Present Condition.—The patient is extremely feeble and cachectic. *Lungs* are normal. *Heart*.—The left border is in the nipple line. *Sounds* normal at the apex, but in the

aortic area a loud blowing ventricular systolic murmur is heard. *Urine* has a neutral reaction. No albumen. There is a phosphatic deposit.

Occasionally the patient is seized with tremors, sometimes limited to the right arm, but at other times of the whole body. She complains of a continual feeling of coldness, so that she always requires the use of hot pans. Her appetite is fairly good. The bowels are constipated so that enemata require to be given. The finger nails are very much curved and the tips of the fingers are somewhat clubbed.

In the right subclavicular region there is a somewhat circular circumscribed swelling, which extends vertically from the clavicle to the third intercostal space, a distance of $4\frac{1}{2}$ inches, and transversely from a point $2\frac{1}{2}$ inches from the right of the midsternum to the axilla, and measuring in this direction $4\frac{1}{2}$ inches. It does not pass up under nor interfere in any way with the clavicle. Externally it extends into and partly obliterates the axillary space. The skin over the tumour is not involved. The tumour itself is smooth and firm and is pretty movable. In size, it varies from time to time, becoming larger when the patient exerts herself and smaller when lying at rest. The percussion note is dull and the area of dulness corresponds exactly to the area already mapped out.

The main feature about the tumour is that it is, both to inspection and to palpation, pulsatile. This pulsation is expansile, and can be diminished, and even altogether obliterated, by compression of the subclavian artery, and increased by compression of the brachial artery. On auscultation a double bruit, soft and blowing in character, is heard.

The patient complains of a constant sense of numbness in both arms, more especially in the right. The right is oedematous and almost completely paralysed. It is the seat of shooting pains, which are almost constant, but occasionally come on in severer paroxysms. The veins on the right side of the neck are congested. The right pulse is weak, the left is imperceptible. Both the subclavian arteries are enlarged, and rise above the level of the clavicle, and are both seen and felt to pulsate very distinctly. That of the right side pulsates more than that of the left. They are easily compressible. On examination of the back, immediately to the left of the dorsal portion of the spinal column, there is a slight prominence, which pulsates and gives a double bruit on auscultation. The patient complains of pain at this side, which is much relieved by lying on a water bed. The patient

also complains of pain and of a "beating" in the abdomen, and on tracing the abdominal aorta downwards, a distinct enlargement is felt. This extends from $\frac{1}{2}$ an inch above the umbilicus to 2 inches below it, and measures transversely about $2\frac{1}{2}$ inches. The largest part of it lies below and to the left of the umbilicus. The upper edge of it merges *abruptly* into the upper part of the abdominal aorta. Pulsation is very distinct and is expansile. It can be diminished by compression of the aorta above. The tumour is smooth and firm, and is somewhat compressible. A soft blowing double bruit is heard on auscultation. In each groin there is a small tumour, the left being the larger. Both are at the origin of the common femoral arteries. The left measures about $1\frac{1}{2}$ inches, the right about 1 inch. Pulsation is distinct in both. The patient also complains of a "lump" on the right thigh. This "lump" corresponds to the superficial artery in its course through Hunter's canal. It extends from a little below the middle of the thigh down to the upper part of the popliteal space, and measures about $5\frac{1}{2}$ inches in length and about 3 in breadth. It is smooth, firm, movable, and pulsatile, with double bruit on auscultation, diminished on compressing the upper portion of the femoral, and increased by compressing the artery below it. The limb can be flexed fully at the knee without any inconvenience. The patient states that there is occasionally severe pain and swelling of this limb, but the swelling has now disappeared, and the pain is not nearly so severe or frequent.

On examining the corresponding portion of the left lower limb another tumour is felt. They are similar to each other, except in regard to exact position on the left limb. It extends from the inner side, at the junction of the middle and lower thirds of thigh, to a little below the popliteal space, measuring $5\frac{1}{2}$ inches, transversely about 3 inches.

Family history of no importance; no history of aneurism.

Treatment.—Injection of morphia hypodermically three or four times a day, with light diet. Patient placed on a water bed.

24th April.—This morning the skin over the axillary aneurism (which has increased in size during the last four days) became ecchymosed. About half an ounce of blood escaped externally. The subcutaneous tissue is very boggy. The patient is very weak. A pad of lint with calico bandage was applied firmly over the part.

26th April.—The pad was removed to-day. There has been a slight additional haemorrhage externally, and the

tissues are beginning to slough. There is a bad odour perceptible. A fresh pad, with iodoform and calico bandage, applied. The patient is gradually becoming weaker and paler.

28th April.—The patient is getting weaker. A little stimulant ordered. The right arm, and especially the hand, is becoming discoloured and cold. The nails and fingers are blackish in colour. Dressed to-day, and the sloughing was found to be more considerable. The right arm and hand are completely paralysed. There is also complete anaesthesia and analgesia. She feels no pain now in the right shoulder. The right arm was wrapped in cotton wool. The left arm and hand are slightly swollen.

3rd May.—The patient has become very drowsy for the past three days and very much weaker. To-night a little oozing of blood occurred. Pressure was applied. Her feet have become much swollen, and there is a slight discolouration of the nose as well as the fingers and toes. The nails are much darker and the skin cold. A slight pulsation can be detected in the left forearm, $1\frac{1}{2}$ inch above the styloid process of the radius.

4th May.—The nose has become more discoloured. She complains to-day of general pain throughout the body.

6th May.—The patient is in much the same condition as yesterday. The skin is slightly colder to the touch, and the discolouration more pronounced. Feet have become more swollen.

7th May.—The patient has been much quieter to-day, and did not require the injection of morphia until the evening.

8th May.—Patient in the same condition as yesterday.

9th May.—Consciousness lost to-day.

10th May.—Death took place this morning at 9.40.

III.—CASE OF FRACTURE OF THE SKULL WITH LOSS OF VISION IN ONE EYE AND HEMIANOPIA IN THE OTHER.

BY DR. THOMAS REID.

J. K., a farmer, at 35, was pitched from his machine when turning the sharp corner of the avenue to his house on May 12, 1887. His head came in contact with a large rounded stone. He was taken home in an unconscious state. When he recovered consciousness some days after, the sight of the left eye was found to be gone, as well as the temporal half of the right. When seen at this time, along with his medical attendant, Dr. Donald, of Paisley, there was a puffy swelling and discolouration of the forehead, but no distinct evidence of

fracture, which the state of the vision suggested. The ophthalmoscopic examination of the optic nerves gave negative results. The patient was irritable and could with difficulty be kept in bed. Under bromide and iodide the general symptoms yielded, and the swelling of the forehead subsided. When again seen in July he seemed to have recovered perfectly, except as regards vision, which had remained unchanged from the beginning, and ophthalmoscopic examination of the optic nerves showed no appreciable change. A depression of the left side of the forehead could now be easily made out, running obliquely from the centre of the forehead downwards and outwards, terminating near the middle of the left supercilium.

Again examined in February of the present year, left optic nerve pale with sharp irregular outlines. Retinal vessels small with sharp outline, right nerve pink, outline veiled and the retinal vessels in a state of inflammatory congestion for some distance around the disc. No change in vision.

May 1st, left nerve unchanged; right, pale and the vessels accompanied by white lines. A chart taken with the perimeter gave the nasal side of the field of the usual extent, including about 5° of the temporal side with the eye distinctly everted in fixation.

There can be no doubt that in this case there was fracture of the base passing through the chiasma and traversing the course of the left optic nerve either behind or in front of the decussation, probably the latter.

IV.—CASE OF ANEURISM OF THE FIRST PART OF THE AORTA.

BY DR. JOHN LINDSAY STEVEN.

THE specimen shown was obtained from the body of a man who died in Dr. Wood Smith's Wards of the Royal Infirmary on the 4th May, 1888, while I was temporarily in charge. The patient was a shoemaker, 42 years of age, and is reported to have been always healthy until about 8 months before his admission to the wards. His chief symptoms seem to have been breathlessness and palpitation on any exertion or excitement, gastric disturbance and constipation. When I saw the patient for the first time he was almost in a moribund condition. There was anasarca of a very extreme degree; the breathing was laboured; the countenance was very cyanotic; the pulse was water-hammer in character; the apex beat was diffused; and loud V.S. and V.D. murmurs were audible up and down the sternum. The man's condition did not permit

of any detailed examination, and he died in a day or two after I entered on duty.

At the *post-mortem* examination the following state of matters was discovered. Both pleural cavities were distended with clear serous fluid, and the lungs, though otherwise normal, were somewhat compressed by the fluid.

The pericardium contained about 3 ounces of clear serous fluid, and the heart, which was much enlarged, weighing 24 ounces, was somewhat quadrilateral in shape, the apex being rounded and blunt. There was considerable dilatation of the left ventricle, much more than usual of the wall of this chamber being visible from the front. The first part of the aorta, which was in an extreme state of atheromatous degeneration, was distended and globular in shape—the distension amounting to aneurism. The bulging, as is seen in the specimen now shown, is greatest towards the right side, and causes a projection of the wall of the vessel towards the right auriculo-ventricular groove. On testing the aortic valve with water at the time of the *post-mortem* it was found to be distinctly but not greatly incompetent, the water escaping with comparative slowness. The aortic curtains as may now be seen are slightly thickened, but quite non-adherent and freely movable—in fact it is clear that the primary disease has not been in them. There was considerable dilatation of both ventricles, but the other valvular curtains showed no abnormality. The muscular tissue of the heart was pale but firm, and the wall of the left ventricle measured three-fourths of an inch.

The other organs of the body presented nothing remarkable.

V.—A CASE OF OSSIFICATION OF THE CHOROID.

By DR. T. S. MEIGHAN.

C. M., *æt.* 26 years, was admitted to the Glasgow Eye Infirmary 12 years ago, suffering from a small punctured wound of the corneo-sclerotic margin at the inner aspect of the right eye.

It was noted on admission that while he was standing close to a smith a chip of iron struck him on the right eye. His parents, thinking it was a slight injury, applied poultices for three days.

At the inner side of the eyeball there was a wound in the ciliary region, barely a quarter of an inch in length. Its edges were irritable, the aqueous chamber was muddy, and there was a small hypopion. The whole eyeball was congested.

Scarcely any illumination of the interior of the eye could be obtained by the use of the ophthalmoscope.

One month after receiving the injury the wound was found to have healed, the hypopion had disappeared, and the anterior chamber was clear, and on looking through the pupil a whitish, lymphy-like substance could be seen deep in the interior of the eye.

He was readmitted on the 18th April, 1888, and states that the eye had only given him occasional trouble since the injury, the attacks lasting usually about a fortnight, and consisting of conjunctival injection and tenderness in the injured eye. About a fortnight ago one of these attacks began.

Complains of pain, with dimness of sight in the left eye, conjunctiva injected, with overflow of tears and intolerance of light. The right ball has atrophied, is somewhat congested, feels hard, and is painful on pressure. Right eye, no perception of light. Left eye can read No. 4 Jaeger test type at four inches distance. $V = \frac{20}{100}$.

On ophthalmoscopic examination of the left eye the media were found to be clear. Refraction astigmatic; optic disc and retinal vessels congested.

As there were doubts as to whether a foreign body might be lodged in the interior of the right eye and a danger of sympathetic ophthalmia of the left eye, the right eyeball was enucleated on the 21st April.

He gladly submitted to the operation for relief from the pain.

An examination of the enucleated eyeball was made, and it was found that the greater part of the choroid was converted into bone, with small projecting rounded nodules on its surface. The lens had undergone calcareous degeneration.

Sections of the eye were shown, under the microscope, to the meeting.

VI.—DR. DAVID NEWMAN showed TWO CASES OF COMPLETE LARYNGEAL STENOSIS PRODUCED BY WOUNDS OF THE LARYNX IN ATTEMPTED SUICIDES.

VII.—DR. H. C. CAMERON showed (a) A DERMOID CYST OF THE ABDOMEN WITH TEETH GROWING IN ITS WALL; (b) A LARGE DUPUYTREN'S EXOSTOSIS OF THE GREAT TOE.

ABSTRACTS FROM CURRENT MEDICAL LITERATURE.

SURGERY.

By MR. A. E. MAYLARD.

On the Disinfection of Surgical Instruments. By P. Redard (*Revue de Chirurgie*, May and June, 1888).—These papers contain an exhaustive experimental investigation into the subject of complete disinfection of instruments. The author first shows the inadequacy of the present method usually adopted of placing instruments, previous to use, in a 5 per cent solution of phenol. Two classes of experiments were carried out. In the one, instruments soiled with some septic material were submerged in a 5 per cent solution of carbolic acid for varying lengths of time. They were then inserted into a cultivating medium, and in all cases where there was any complexity in the structure of the instrument—such as forceps, trocars, grooved needles, &c.—development took place. In the other class, fragments of instruments so apparently sterilised were inserted into susceptible animals, and in almost every case the animals became infected. M. Redard went still further with his investigations, showing that even the 5 per cent phenol itself may contain microbes capable of inoculating wounds, the water used for making the solution remaining unsterilised by the addition of the acid. After a long discussion of the whole subject of disinfection by means of fluid antiseptic solutions, and a practical demonstration of their inadequacy as sterilising media, the author proceeds to explain the method he suggests for effectually attaining the desired end of complete sterilisation. Steam under pressure at a temperature of 110° C. is the medium, and the apparatus for procuring the same a somewhat elaborate metal chamber, into which the instruments are to be placed. A diagram in the text serves to make the description clear. From 20 minutes to half an hour is the time for disinfection. Adopting similar tests to those employed in the experiments with antiseptic solutions, the author found that in every case sterilisation was effected. [The papers are in every way instructive, and worthier of a more extensive notice than can be given here.—A. E. M.]

The Gradual Correction of False Ankylosis at the Knee.—At a meeting of the New York Surgical Society, on 23rd May, 1888, Dr. V. P. Gibney presented two patients illustrating the method of correcting false ankylosis by means of jointed splints, such as are used in Billroth's Clinic in Vienna. In treating the knee joint a stocking was first applied with padding over the patella; then the limb was covered with plaster of Paris bandage, extending from the lower third of the leg to the upper fourth of the thigh, the ligamentum patelle being left uncovered. The splint was next adjusted, and covered with a plaster bandage. While the plaster was setting, a transverse cut was made across the popliteal space down to the stocking, and an elliptical space was also made over the ligamentum patelle. On the following day the leg was extended as much as possible, and a wedge of cork was inserted between the edges of the opening in the popliteal region. If there was much pain the manipulation was not repeated until the third day after, when the limb was extended more, and a larger wedge was inserted. In the course of a few weeks, with a single dressing, from 15° to 50° of motion could be gained. In the cases of children the limb could be straightened in two or three weeks; in older patients a longer period was required.—(*New York Medical Journal*, 30th June, 1888.)

The Treatment of Wounds with Iodoform Tampons. By F. Bramann (*Archiv für Klin. Chirurgie*, 1887, bd. xxxvi, pp. 72-96).—This

method of treating wounds the author recommends for such cases as those where there is some difficulty in completely stopping haemorrhage after operation, and when there is some doubt as to the complete antiseptic course of any case. The cases mostly coming under this category are operations upon the mouth, rectum, abdomen, &c., where there exists a cavity which cannot be properly treated with an ordinary surface dressing. The parts, after the operation, are first thoroughly washed out with some antiseptic, such as sublimate, 1 to 2000; salicylic acid, 1 to 1000; boracic acid, 2 to 100; or iodoform in ether, 1 to 10. The cavity is then stuffed with strips of iodoform gauze, usually in lengths of one to two yards, the end of each strip being allowed to project from the corner of the wound. The strips are left in for about two days, but, if thought necessary, longer. The author gives numerous cases in which the treatment had been adopted, and in nearly all the results were good. Thus, in 26 cases of operation upon the rectum for cancer, not one had a bad symptom. Of 20 excisions of the tongue, only 1 died from hemorrhage, and in that case the patient was a feeble old man of 66. Of 19 total excisions of the upper jaw, 1 only did not recover—the patient, a female aged 67, dying on the 10th day from pneumonia. Several other successful results are recorded in cases of excision of the hip, compound fracture, &c.

A New Operation for the Treatment of Fixed Retroflexion of the Uterus. By Klotz (*Berl. Klin. Wochenschr.*, 1888, No. 4).—The abdomen is opened and any adhesions found binding the fundus to the neck of the uterus or to other parts in the cavity of the pelvis are broken through with the hand. A glass tube for drainage is inserted behind the uterus reaching to the bottom of the cul-de-sac of Douglas. This method of drainage prevents any accumulation of blood in the peritoneal cavity, offers a means of support to the readjusted uterus, and effects the formation of a mass of new connective tissue, which takes the place of the originally retroflexed fundus. Klotz has treated in this manner seventeen patients, and all with success. The displacement has been corrected, the uterus has become movable, the pains have disappeared, and in none has there been any tendency to a ventral hernia through the parietal cicatrix.—(*Archives Générales de Médecine*, June, 1888.)

The Immediate and Remote Effects of Vaginal Hysterectomy for Cancer of the Uterus. By F. Terrier (*Revue de Chirurgie*, May and June, 1888).—In a paper, extending over two numbers of the *Revue*, M. Terrier—on the basis of 18 cases operated on by himself—discusses two questions—(1) The advisability or not of entire removal of the uterus in disease affecting only the neck; and (2) the value of the operation as regards curing the disease. Upon two grounds he argues for complete removal in all cases—one, that it is a practice consistent with what is usually performed in other parts of the body for cancer—to wit, the mamma; and second, that the disease, though apparently only involving the neck, may also implicate the body of the organ. Still further, he does not believe the extra danger involved in total extirpation out of proportion to the good which may result. As regards the value of the operation in bringing about a cure, of M. Terrier's 18 cases, four only died, and these mostly from shock and hemorrhage. Of those alive at present one was operated on three years ago, another two years, two one year, and three less than a year ago.

The Galvano-Cautery Sound and its Application, especially in Hypertrophied Prostate, with Report of Cases. By Robert Newman, M.D., of New York.—This paper was read on 8th September, 1887, before the Section of General Surgery, of the Ninth International Medical Congress, and printed in the *New England Medical Monthly*. Several cases are given as illustrative of the success of the method, but a brief account of the first will be sufficient to indicate the apparent value of the method and its mode of application.

A medical man, *æt.* 60, suffered greatly from enlarged prostate, frequent and painful micturition, and from *cystitis*. He was obliged to pass urine seven or eight times during the night. He suffered by day and was deprived of rest at night, and was no longer equal to the performance of his professional duties. A digital examination per rectum disclosed a hypertrophied prostate, enlarged in its entirety, with a preponderance of *pons intermedia*. On 26th May, the fenestrum of the galvano-cautery sound (in which is the platinum wire) was brought against the hypertrophied prostate, at 7½ inches from the meatus, then the cautery applied by two instantaneous flashes. The operation occupied but a moment and was painless. The same operation was repeated several times for the next twelve months, with the final result that the patient passed his urine voluntarily, easily, and at regular intervals. Slept without disturbance the whole night; could retain his urine for eight hours, and was able to attend to a large country practice without fatigue.

An Observation upon the Physics of the Male Urethra. By W. W. Wagstaffe, B.A., F.R.C.S.—“I have been struck, during the passage of catheters and bougies in the out-patient room, with the fact that a natural twist is given to the instrument during its removal from the bladder and urethra of the male, a rotation very sensible to the feel, especially when light and flexible instruments are used. . . . The degrees of rotation are estimated by means of a pin fixed vertically in the stem of the bougie just outside the meatus.”

The experiment was performed with a bougie à boule of medium size; the bulbous end being grasped by the part of the urethra it is in contact with, is rotated with readiness; and to prevent any check to freedom of movement of the bougie it is withdrawn by means of a piece of fine silk noosed round the stem near the top. In nearly all the cases observed rotation began at once to the patient's left for a certain distance and to a certain degree, generally making the index stand directly opposite its original position, passing, that is to say, through 180° or half a circle. This position was reached when the instrument had passed about four inches from its start, and then began a reverse rotation, usually, but not invariably, until the index stood at right angles to the start. The reason of this twist the author ascribes to the peculiar construction of the urethra. In the ordinary state the canal is represented by a fissure bounded by columns of mucous membrane which may be traced from the bladder outwards running in the direction of an elongated spiral. In the tracing out the changes upon the subject it will be found that the urethra is rifled somewhat after the manner of a gun barrel, but the spiral of the urethral tube which runs from right to left in about the upper three-fourths of its length usually becomes reversed over its distal extremity. In concluding, the author observes—“The object of the spiral grooving in the case of the gun is to secure for the projectile a rotatory motion and greater precision in the direction of aim, and we may very fairly assume that similar advantages of a physiological nature are gained for the outflow of the urine and semen by the arrangement of the urethral column.”

INSANITY.

BY DR. R. S. STEWART.

Miliary Aneurism. By Spitzka (*Amer. Journ. of Insanity*, October, 1887).—This case, interesting from (1st) its resemblance to disseminated sclerosis, and (2nd), as affording an illustration of the hereditary tendency to degeneration of one particular system, the vascular, is that of a girl in whom symptoms began to develop about the age of 16. These were mainly as follows:—Peculiar mental disturbance with incoherence of speech, occurring

mainly during the night ; a tendency to drop objects held in the hands ; fainting seizures ; amenorrhœa ; anxiety ; timidity of demeanour and taciturnity ; scanning of speech ; spastic paretic gait ; exaggeration of the knee-jerk ; marked intention tremor ; progressive failure of nutrition and cardiac action ; coma and death ; the duration being about eight years. The father died at 40, and a brother at the same age as the sister, with symptoms closely resembling those above mentioned. At the autopsy a large number of blood islands was found in the cord, chiefly in the grey substance, and in the cortex and white substance of the whole encephelon. These, on examination, proved to be closed sacs, and were, in reality, ectases of the normal arteries of the parts.

A Case of Etheromania. By Ritti (*Annales Medico-Psychologiques*, January, 1888).—A woman, whose father died of apoplexy and whose mother was very nervous, began at 22 to suffer from menstrual irregularity with faintings. For these latter ether was prescribed. For four months she continued to take it in excess and then discontinued it, but at 42 it was again prescribed for the same complaint. The craving increased until in the course of a single night (the day being mainly occupied in purchasing from different chemists small quantities of the drug) she would take as much as 215 grammes (nearly seven ounces). Her disposition became entirely altered. She became irritable, suspicious, and suicidal, and resorted to all sorts of mean subterfuges, finally (having previously moved in good society) taking to begging in the streets to obtain money to satisfy the craving. After six months residence in an asylum the craving disappeared, and three months after her discharge it showed no signs of returning.

A Case of Morphinomania terminating suddenly in Death. By Ball (*Annal. Medico-Psychol.*, January, 1888).—A young woman of 25, addicted for many years to morphia injections, after repeated but unsuccessful attempts to discontinue the habit, voluntarily entered the Asylum of St. Anne. At the time of her admission she was taking one gramme of hydrochlorate of morphia per diem. The morphia was gradually diminished until, after 45 days, it was entirely discontinued, injections of sparteine being given to combat the cardiac failure, which was a prominent symptom. On the twelfth day of convalescence syncope suddenly supervened, terminating fatally, in spite of repeated injections of morphia.

The only noteworthy feature revealed by the autopsy was the presence of morphia in large quantity in all the viscera, and particularly in the liver, where it amounted to 46 centigrammes (*Archiv. de Neurol.*, January, p. 114).

The points to which Dr. Ball specially directs attention are :—1st, That after several days of complete abstinence from morphia that drug still remains in the viscera ; 2nd, that the presence of the morphia may explain the occurrence of accidents observed long after the cessation of the habit, a sort of auto-intoxication taking place ; and 3rd, that cardiac tonics play an important part in the treatment and should be continued long after the discontinuance of the morphia.

Race and Insanity. By Bannister and Hektoen (*American Journal of Insanity*, April, 1888).—From an analysis of the admissions into the Illinois Eastern Asylum, these writers draw the following conclusions :—In the white races the depressive types of mental disease are most frequent in the Germanic and Scandinavian peoples and least so in the Celts. The insanity of African races is especially and predominantly of the exalted or maniacal type. General paralysis is much less frequent in this State than in England, the respective proportions being 3.75 and 9 per cent of the admissions. This type of disease, though furnished chiefly by the native born, affects all other nationalities, the only one, however, that shows a greater percentage than is attributed to it at home being the Irish. Insanity is much more common amongst the foreign born than amongst natives, a fact not to any great extent explainable by the shipment of the defective classes from

Europe, but to be attributed rather to the altered conditions of life attendant upon emigration.

A Case of Pseudo-Tabes. By Pitres (*Archives de Neurologie*, May, 1888).—This is the case of a man who presented all the symptoms of locomotor ataxia with two exceptions—viz., absence of any affection of the knee-jerk or of the pupillary reflexes. A foreman in a foundry, and previously in the enjoyment of vigorous health, at 35 he complained of lumbago and a year later he suffered from acute lancinating pain in the right hip and polyuria. At 39 girdle sensation, uncertainty of gait with a feeling as if the ground were sinking at each step, Romberg's symptom, and genital excitement succeeded by frigidity supervened, followed during the next five years by urinary troubles, rectal tenesmus, gastric crises, and lightning pains. Death occurred at 45, from tubercular pleurisy, and careful microscopic examination failed to detect any lesion of the spinal cord or peripheral nerves, except the left recurrent laryngeal, which was composed entirely of atrophied ribbon-like fibres.

Cumberland and Westmoreland Asylum: Annual Report for 1887.—During the past four years melancholia has been the preponderating form of insanity in the admissions, and this Dr. Campbell attributes to the depressed state of trade, prosperous times tending rather to develop the excited forms of mental disorder. This same fact tends also to affect the recovery rate, mania being more hopeful, as regards prognosis, than melancholia. As another instance of the influence of passing events on the form of insanity, it is pointed out that six of the admissions of the Jubilee year were possessed of delusions that they were members of the royal family or the recipients of crown honours.

Garlands occupies an unique position among asylums with regard to autopsies, all the deaths, with only one exception during the last 20 years, having been followed by *post-mortem* examination.

Dr. Campbell's report concludes with some useful remarks on Lunacy Legislation, pointing out the necessity for provision to allow of removal of Irish and Scotch patients to their place of settlement, for simplification in the admission form, directions to relieving officers with regard to the possession by patients of dangerous weapons, for the introduction of some proceeding by which the capital of lunatics, at present treated as paupers, may be appropriated for their maintenance as private patients and for the extension of the capitation grant of four shillings per week to the insane maintained in workhouses and in private families and not, as at present, only to those maintained in asylums.

Saughton Hall Institution: Annual Report for 1887. By J. Batty Tuke, M.D.—The voluntary system appears to be taken advantage of to a considerable extent in this asylum, no fewer than 10 being admitted during the year as voluntary boarders. The procedure entails very little trouble and as little publicity, all that is required being a permission, granted, on application, by the General Board of Lunacy, to be received into the asylum. At the same time the patient's name is entered in a special book, and therefore does not appear in the list of legally certified lunatics. A written application is necessary for discharge, the superintendent having the power of detention, if such appears to him to be urgently necessary, for a period of not more than three days. Dr. Tuke, as the result of 20 years' experience, both in private and pauper asylums, speaks in the highest terms of the open-door system. The commissioners report very favourably of the management of the institution, while the introduction of hospital-trained nurses and the training of *masscuses*, changes effected during the year, are in themselves sufficient indication that the medical spirit is fully maintained. The terms of board are from £100 to £500.

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ORIGINAL ARTICLES.

CLINICAL OBSERVATIONS ON EPILEPTIC
INSANITY.

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(Thesis for the Degree of M.D. in the University of Glasgow.)

THE subject of epilepsy has engaged attention from the earliest times, and yet it is one which is ever new. Much as has been written regarding it, it is generally recognised to be veiled in considerable obscurity, and this from the fact that we do not know its pathology. Notwithstanding, its clinical phenomena, so closely related to the insane neurosis, are of interest, not only to the alienist, but to the general practitioner, and as these cannot be said to have been exhaustively investigated, I have been led to make a few observations on some of the cases of epileptic insanity at my disposal. I have traversed no new ground; but have directed more special attention to points which hitherto have been less fully inquired into than some of the many interesting features of the disease—viz., the urine and the condition of the deep reflexes. The question of treatment has also received some special consideration, and in the majority of cases the comparative value of various drugs has been estimated.

The epileptic insane patient is, of all asylum patients, the most troublesome to deal with, and they who have such cases

under their care know how exceedingly difficult it frequently is to carry out investigations with the desired degree of accuracy. Sometimes he is too dull and stupid to apprehend what is said to him, sometimes he is irritable and thwarts attempts to examine him, and again he may be too violent and dangerous to be interfered with, from a clinical point of view; and hence some of the various observations in this record of cases are necessarily incomplete and imperfect.

The cases referred to are thirty-two in number, nineteen males and thirteen females, and no special mode of classification has been adopted.

In the first fourteen a quantitative analysis of the urine has been made, and in every case, with one exception, samples of urine were taken at different periods of the day and tested for sugar and albumen. It has frequently happened that the whole of each day's urine could not be saved, either from the patient wetting himself, or refusing to pass his urine when requested. The sulphates, chlorides, phosphates, and urea have been quantitatively examined: the sulphates—as anhydrous sulphuric acid—by the chloride of barium process; chlorides—as chlorine—by nitrate of silver; phosphates by acetate of uranium—the earthy phosphates being first precipitated by ammonia and then treated with the uranic solution, and their amount subtracted from the total phosphates to give the amount of alkaline phosphates; the urea has been estimated by the hypobromite process.

The tests applied for albumen were:—(1) Heat, with a few drops of acetic acid afterwards added; (2) nitric acid added to the cold urine, by the contact method; (3) saturated solution of picric acid, also by the contact method, and used chiefly as a negative test. In doubtful cases only those urines which gave reactions with all three tests were pronounced albuminous.

Fehling's solution was the chief test employed for sugar; the bismuth and picric acid tests were sometimes applied.

The periodic samples of urine were taken at 6.30 A.M., when the patients rose from bed; 9.30 A.M., half an hour after breakfast was finished; 12.30 P.M., half an hour before dinner. The diet, a mixed one, was precisely the same in all cases, and none of the patients were engaged in any laborious employment between breakfast and dinner.

In every case the reflexes have been tested, and where possible, at various intervals from the epileptic attacks. The knee-jerk has always been examined in the immediate manner—the leg was bare, and the blow struck over the ligamentum

patellæ with the ulnar side of the hand or the tips of the fingers.

The drugs employed have been:—(1) Bromide, in 10, 15, and 20 grain doses, thrice daily, and in 30 and 60 grain doses at night; (2) tartarated antimony, commenced in quarter-grain doses, and increased to 1 or 2 grains thrice daily; (3) the same, combined with 5-minim doses of tincture of aconite; (4) liquor arsenicalis in doses from 5 to 10 minims; (5) sulphate of zinc, from 1 to 5 grains; (6) borax, from 15 to 30 grains; (7) chloral hydrate, from $7\frac{1}{2}$ to 15 grains. The four last were administered in three daily doses. Combinations of bromide with chloral, tincture of belladonna, and ammoniated tincture of valerian have been tried in a few cases.

CASE I.—Congenital imbecility—epilepsy from early childhood—feeble mental power—amnesia—irritability—occasional aura of vertigo—knee-jerk sometimes in excess—no typical ankle-clonus—urea and phosphates, especially the alkaline, diminished, and little influenced by occurrence of fits—bromide beneficial.

CASE II.—Congenital imbecility—epilepsy from early childhood, caused by fright—hereditary predisposition—limited intelligence—irritability—no aura—abatement of fits during sub-acute illness—cardiac disease—characteristic physiognomy—knee-jerk habitually in excess, occasional ankle-clonus—albuminuriz—phosphates and urea diminished, but a slight relative increase occurs in latter after fits—bromide beneficial.

CASE III.—Weak-minded, probably from birth—epilepsy from boyhood at least—sulky and repellent—explosions of temper—amnesia—facies characteristic—languid circulation—variable knee-jerk—no ankle-clonus—albumen in urine during epileptic periods—urea and phosphates below normal, relative increase in urea and alkaline phosphates after fits—arrest of fits by bromide.

CASE IV.—Epilepsy from three years of age—destructive propensities—slow at learning—amnesia—weak-minded—suspicious—various auræ—attacks of “petit mal”—exaggeration of knee-jerk—ankle-clonus—excretion of urea and phosphates diminished, but slight relative increase with fits—slight improvement with changes in treatment.

CASE V.—Epilepsy from birth—insanity from fifteen years of age—dementia—amnesia—paroxysms of excitement—fits frequent and severe—phthisis pulmonalis—knee-jerk frequently in excess—ankle-

clonus only present immediately after fits—urine sometimes albuminous, urea and phosphates below normal, and relatively increased with fits—bromide slightly reduces but antimony increases frequency of fits.

CASE VI.—*Epilepsy from infancy—cessation of fits between seven and fourteen years of age—insanity at twenty-nine—violent paroxysms—mild dementia, with irritability and suspicion—cephalic aura—fits infrequent, but severe—knee-jerk habitually in excess, occasional slight ankle-clonus—phosphates, especially alkaline, diminished.*

CASE VII.—*Epilepsy from nine years of age—cause, fright—hereditary predisposition—became insane at 21—progressive dementia with irritability and occasional excitement—phthisis pulmonalis—knee-jerk variable—ankle-clonus sometimes present—albuminuria—phosphates and urea deficient—bromide beneficial.*

CASE VIII.—*Epilepsy from boyhood—became insane at 40 years of age—violent paroxysms—unconscious cerebration—laryngeal epilepsy—auditory hallucinations—pneumogastric aura—fits infrequent—knee-jerk normal—albuminuria—urea and phosphates deficient, but relatively increased with fits—hereditary tendency to insanity.*

CASE IX.—*Epilepsy from boyhood—attacks of “petit mal” and irresistible impulses of self-directed violence in the daytime—epileptic seizures chiefly nocturnal—delusions of having “devils in his inside”—auditory hallucinations—psychical aura—albuminuria—urea and phosphates, especially the alkaline, very deficient; slight relative increase of both with fits—borax beneficial.*

CASE X.—*Epilepsy from 21 years of age—insanity developed two years later—violent and unconscious impulses—progressive dementia—facies characteristic—knee-jerk exaggerated, no ankle-clonus—albuminuria—urea and phosphates, especially the alkaline, deficient—bromide and borax of some benefit.*

CASE XI.—*Epilepsy from 22 years of age—insanity from 24—hereditary predisposition to epilepsy and insanity—dementia—occasional excitement—knee-jerk in excess—ankle-clonus—albuminuria—urea and phosphates, especially the alkaline, diminished—cessation of fits under bromide treatment.*

CASE XII.—*Epilepsy and insanity developed simultaneously at 29 years of age—previously intemperate—hereditary predisposition—mild excitement—irritability and suspicion—stupor—cardiac disease*

—incipient phthisis pulmonalis—cessation of fits during acute illness—deep reflexes in excess—urea and phosphates habitually deficient, relatively increased with fits—bromide arrests epileptic seizures.

CASE XIII.—Kicked by a horse on forehead; relation to epilepsy uncertain—became insane at 37 years of age—epilepsy at first nocturnal—“*l'epilepsie larvée*”—maniacal paroxysms—dementia—cardiac disease—exaggerated deep reflexes—urinary constituents, but alkaline phosphates in particular, diminished—refusal of medicine.

CASE XIV.—Epilepsy—dementia—periods of excitement—auditory and visual hallucinations—defective habits—knee-jerk not in excess—ankle-clonus present after fits—urea and phosphates, especially the alkaline, deficient—bromide beneficial.

CASE XV.—Epilepsy—acute mania—dementia—post-epileptic furor with dangerous propensities—religious tendencies—epileptic attacks periodical—albuminuria—knee-jerk in abeyance after a fit, no ankle-clonus—bromide arrests fits and prevents excitement—hereditary predisposition to epilepsy, insanity, and intemperance.

CASE XVI.—Epilepsy from ten to twelve years of age—exciting cause, fright—hereditary predisposition—cessation of fits between twelve and nineteen—acute mania at twenty-three—pneumogastric aura—paroxysms of excitement and violence—habitual exaggeration of knee-jerk—occasional ankle-clonus—urine non-albuminous—bromide beneficial.

CASE XVII.—Epilepsy from five years of age—presumable congenital mental deficiency—destructive and violent propensities—post-epileptic hemiplegia—ankle-clonus and exaggerated knee-jerk after fits.

CASE XVIII.—Congenital imbecility with epilepsy—motor restlessness—destructive propensity—partial arrest of fits during bodily illness—deficiency of knee-jerk—albuminuria—frequency of fits reduced, and mental condition improved, by bromide.

CASE XIX.—Convulsions during first dentition—recurrence of fits at twenty years of age—progressive mental failure—exaggeration of deep reflexes—albuminuria—phthisis pulmonalis—death.

CASE XX.—Hereditary predisposition—epilepsy since first dentition—larvated attacks—dementia—amnesia—irritability—delusions—defective circulation—albuminuria—exaggerated knee-jerk—arrest of fits by bromide.

CASE XXI.—*Hereditary predisposition to epilepsy and insanity—convulsions during first dentition—cessation of fits till nine years of age—suicidal and violent propensities—absence of fits during acute illness—childishness—irritability—voracious appetite—languid circulation—exaggeration of deep reflexes—arrest of fits by bromide.*

CASE XXII.—*Convulsions during first dentition, return of them at twelve years of age—supervention of insanity at sixteen—restlessness—suicidal tendency—dementia, with chronic excitement—defective habits—exaggeration of knee-jerk—occasional ankle-clonus—arrest of fits by bromide.*

CASE XXIII.—*Epilepsy from six years of age, attributed to fright—intemperate habits—insanity at forty—chronic excitement—incoherence—delusions—psychical aura—albuminuria—exaggeration of knee-jerk—presence of ankle-clonus after fits—diminution of fits under bromide.*

CASE XXIV.—*Epilepsy from six years of age—supervention of insanity at twenty-three—acute mania—suicidal propensity—progressive mental deterioration—profound stupor replacing fits—exaggeration of knee-jerk—ankle-clonus after a fit—nocturnal attacks—beneficial influence of diurnal administration of bromide.*

CASE XXV.—*Insanity from thirty years of age—attributed to epilepsy of unknown duration—advanced dementia—defective habits—characteristic physiognomy—feeble circulation—albuminuria—exaggerated knee-jerk—nocturnal fits, benefited by diurnal administration of bromide.*

CASE XXVI.—*Hereditary predisposition—epileptic attacks in youth—insanity at thirty years of age—outbursts of violence—laryngeal epilepsy—periodic headaches—epileptiform seizures—real epileptic fits—pneumogastric aura—dementia—amnesia—delusions—visual hallucinations—albuminuria—excess of deep reflexes—arrest of fits by bromide.*

CASE XXVII.—*Hereditary predisposition—epilepsy from twelve years of age—insanity from thirty-one—dementia with irritability—destructive propensity—violent paroxysms—laryngeal attacks—stuttering speech—albuminuria—exaggeration of deep reflexes—beneficial influence of bromide.*

CASE XXVIII.—*Hereditary predisposition—epilepsy from twelve years of age—attributed to a blow on the head—insanity at fourteen—sexual delusions—violent impulses—suicidal tendency—progressive mental failure—periods of excitement—sometimes profound stupor—habitual exaggeration of knee-jerk—ankle-clonus after fits—pneumogastric aura—great frequency of fits—marked increase of attacks under antimony—favourable action of bromide and borax.*

CASE XXIX.—*Convulsions during scarlet fever at thirteen years of age—epilepsy proper from eighteen—acute mania at twenty-two—childishness—irritability—hysteria—aura of vertigo—“petit mal”—albuminuria—exaggerated knee-jerk—beneficial influence of bromide.*

CASE XXX.—*Hereditary predisposition—epilepsy at twenty-six—supervention of insanity at twenty-nine—recovery—second attack at thirty-nine—weak-mindedness—amnesia—variability of temper—religious tendency—languid circulation—albuminuria—habitual excess of knee-jerk—ankle-clonus after a fit—arrest of attacks by bromide.*

CASE XXXI.—*Hereditary predisposition—epilepsy and insanity from about twenty years of age—cephalic aura—dementia—amnesia—irritability—delusions of persecution—albuminuria—habitual excess of knee-jerk—arrest of fits during sub-acute illness and under bromide treatment.*

CASE XXXII.—*History of “shock” at two and a half years of age—suspicion of syphilis, and history of intemperance in father—infantile spastic hemiplegia—epilepsy—impulsive outbursts of violence—limited intelligence—destructive propensity—habitual exaggeration of right knee-jerk, and occasional excess of left—ankle-clonus of right side, suppressed for some minutes after fits—arrest of fits by bromide treatment.*

This, then, completes the record of cases. Mentally and physically they present many features in common, but many points of dissimilarity may also readily be recognised. They may fairly be taken to represent the class of epileptics generally found in asylums, each being a case of confirmed epilepsy in which the motor phenomena are associated in some way, with symptoms of permanent defect in one or other of the functions of the mental mechanism, to a greater or lesser degree.

Insanity is the most important and most dreaded complication of epilepsy, and a large proportion of epileptics, not congenitally imbecile, manifest, sooner or later, some impairment of the intellectual faculties. It is stated by Dr. Reynolds, that some mental disturbance, including impairment of memory as such, is to be detected in more than 50 per cent of epileptics; and of patients admitted to asylums, epilepsy is calculated to be the cause of insanity in about 6 per cent.* The frequency of the epileptic attacks is usually regarded as a more important factor in the production of mental failure

* Bucknill and Tukes' *Psychological Medicine*, fourth edition, p. 97.

than is their severity, yet Dr. Sankey,* quoting from Dr. Reynolds, says—"The influences which lead to intellectual weakness are very obscure, 'neither the age of the first attack, nor the kind or frequency, nor duration in years, seem to have any effect.' " The conclusions which Dr. Gowers† arrives at, are—"That mental failure is determined less by single conditions than by their combinations," and that, "early age at commencement, long duration of the disease, and frequency of attack, are more influential than the sex of the sufferer, the existence of heredity, or even the character of the attacks, so far as concerns the mere distinction between major and minor fits."

That insanity concurs, in some cases, with the onset of the epilepsy, is illustrated in two of the foregoing—viz., Case XII, male, in which they developed at 29, and Case XXXI, female, in which they developed at 20 years of age; in the former there was a history of epilepsy and insanity, and the patient himself was intemperate, and in the latter there was a history of epilepsy only. With regard to the other cases in this connection, in most of them the frequency and severity of the fits prior to admission could not be ascertained, with the requisite degree of accuracy, to base conclusions upon. It may be stated, however, that, excluding congenital cases, periods of from two to thirty-four years elapsed between the onset of the epilepsy and the first indications of mental implication, and that the epilepsy and insanity were not more nearly associated in point of time, in those cases in which hereditary neurotic tendencies were established, than in those in which no such tendencies existed. Nor can it be positively affirmed, that the degree of mental degeneration in these cases, bears any relation to the severity or frequency of the epileptic seizures they have had during their residence in the asylum.

All degrees of mental deterioration may be observed among epileptics, from the slightest impairment of memory to the deepest dementia on the one hand, and from exuberant buoyancy and hilarity to paroxysms of the most furious excitement on the other. The three most characteristic mental symptoms of epileptic insanity, however, are—irritability, impulsiveness, and defect of memory, more especially for recent events. The first and last of these symptoms are found in every one of the cases cited in this paper, and impulsiveness in a large proportion; and besides, they illustrate all grades of mental alienation

* Sankey, *Lectures on Mental Disease*, second edition, p. 349.

† Gowers, *Epilepsy*, 1881, p. 125.

in the directions both of mania and dementia. Cases XVII—presumably congenital—and XIII—undoubtedly congenital—present the smallest amount of intelligence with the maximum of moral depravity. Of cases not congenital, VI, XII, and XXIX, have more intellectual power left than any of the others, while the last stages of dementia are exemplified in cases XXIV and XXV; the most violent maniacal paroxysms are manifested by Cases XIII, XV, and XVI; and examples of intermediate degrees of mental defect may be found indiscriminately in the other cases.

A special feature in the insanity of epileptics is the manifestation of strong religious tendencies, a marked contrast to the profanity these same patients exhibit at other times. This symptom is present in many of the cases recorded here, and mention has been made of it in the histories of IV, XV, XVI, XXVII, and XXX, but it occurs among some of the others, for example, M. B. (Case VIII), who has auditory hallucinations of a religious character. I have seen a young female epileptic get into a passion of rage because another epileptic hinted that "she did not love Jesus." They carry Bibles and prayer books in their pockets continuously, sing hymns in their loudest voice, and shout out prayers for all to hear. Dr. Maudsley* makes special mention of this symptom, and in connection therewith refers to the promulgators of certain religious creeds who were epileptic—Anne Lee, the founder of the "Shakers," Swedenborg, and Mahomet. Dr. Toselli † finds religious tendencies most prominent where some moral shock has been the cause of the epilepsy and in the larvated forms of the disease. ‡

Hallucinations of various kinds are extremely common in epileptics, and were detected in "86 per cent of 267 cases," and "70 per cent showed some troubles of general sensibility." § In the cases cited here, however, auditory hallucinations are prominent only in two (VIII and IX). The one patient hears God and the devil speaking to him, and the other hears the devil only. Visual hallucinations develop in Cases XIV and XV during periods of excitement, and in the latter, at other times as well, but they are not constant. E. E. (Case XXVI), "sees visions" when she is having fits, and in Case IV there

* Maudsley, *Pathology of Mind*, p. 445, and *Responsibility in Mental Disease*, p. 243.

† Toselli, *Annotation, Journal of Mental Science*, January, 1880.

‡ Dr. James C. Howden has written an article on "The Religious Sentiment in Epileptics," in the *Journal of Mental Science*, January, 1873, but this I have not been able to consult.

§ Bucknill and Tuke, *op. cit.*, p. 343.

is a visual aura. Delusions of persecution, giving rise to various paræsthesiæ, are evinced by many of my cases. They complain of being beaten, or as one expresses herself, "leathered by the girls;" another, "they are just killing me now," and so on. In fact, the groundless accusations and grievances of the epileptic class of patients are endless. Most of the female epileptics are obscene and erotic, and many possess delusions, of a sexual nature, relating to their chastity, &c. A considerable degree of morbid suspicion attaches to many cases of epileptic insanity.

A purely hysterical element is present in only one case (XXIX), and this has been fully referred to in her clinical history.

Suicidal acts are not usual among epileptics, and although some of the above cases had suicidal propensities prior to admission to the asylum, only one (Case IX) has shown any tendency to self-injury during his residence.

On the other hand, the acts of destruction, violence, and homicide committed by epileptics are only too well known, abroad as well as in asylums. They tear their clothes, break windows and furniture, perpetrate most brutal and unprovoked assaults, and not infrequently slay outright. In their usual condition they are as a rule more or less self-willed, perverse, and obstinate, but during a maniacal paroxysm they become utterly unamenable to reason, and wholly regardless of everything and every one. It is frequently possible to reason with a patient suffering from ordinary acute mania, but an epileptic maniac is quite beyond this, and words are entirely wasted upon him. Those who have witnessed paroxysms of epileptic fury can excuse the ancient idea of demoniacal possession. The outbursts of excitement with violent manifestations generally appear to succeed the epileptic seizures, and many writers, and among them Dr. Hughlings Jackson, believe that in every instance of transient mental disorder in epileptics there is an antecedent epileptic fit, whether it be recognised or not.

This naturally leads to a consideration of the, in many ways, interesting form of epilepsy, *l'épilepsie larvée* of Falret and Morel, the "mental epilepsy" of Echeverria, and the *furor transitorius* of Maudsley. This form of epilepsy may be described as one in which the neural discharge or explosion is represented not by the usual motor, but by mental phenomena. We find the patient becoming periodically subject to sudden, impulsive, and automatic acts; they may be acts of violence or of mere purposeless absurdity; he may not be altogether

unconscious, but seems to labour under a power which he cannot resist, and when the act is over, generally there is no recollection of it having occurred, or its import is not recognised. Dr. Christian * holds that "larvated epilepsy does not exist, it always being *mistaken* epilepsy. Although it is legitimate to acknowledge that several cases of instantaneous transitory insanity ought to be referred to epilepsy, the proposition could not be, however, accepted as general. At all events, prior to it, the existence of the convulsive fit should be established." Now, M. Morel,† and others, among whom may be mentioned Drs. Clouston ‡ and Sankey, § have observed cases in which these periodic mental disturbances replaced the epileptic fits proper, or in which patients continuing to manifest such mental explosions for a time, became in the end genuine epileptics; and, I think, these or similar conditions find illustration in several of the cases recorded in this paper. Now, if it be true, as Dr. Hughlings Jackson, || believes "that an attack of mania never replaces an epileptic convulsion," it must be that the motor manifestation is so slight as to be inappreciable. The occurrence of acts of unconscious cerebration in Case VIII, without any external evidence of a fit, is an example. Here we have the patient walking into a church and preaching, or, as has happened with the same man during divine service in the asylum, he starts suddenly from his seat and begins preaching, and he has always expressed total ignorance of such acts. In Case IX we have maniacal paroxysms, unassociated with any apparent previous convulsion, and also impulsive acts of self-directed violence, the outcome of "bad feelings" which the patient is unable to resist. In Case X, too, unconscious violent impulses have occurred. In Case XIII the convulsions take place periodically, and instead of a series of fits, he sometimes has a sudden outburst of furious excitement. The "scolding fits" of Case XX, sudden, paroxysmal, and transitory, seem to point in the same direction. M. J. (Case XXVII), becomes wantonly destructive and violent without the appearance of fits. Case XXVI differs somewhat from these others. The patient was admitted as *not* epileptic (she had been subject to epilepsy in youth, but the fact was not then known), and for four years suffered from periodic attacks of violent

* Christian (Review), *Journal of Mental Science*, April, 1881.

† Morel, *Traité des Maladies Mentales* (Sankey, *op. cit.*, p. 174).

‡ Clouston, *Mental Diseases* (2nd edition, 1887), p. 403.

§ Sankey, *op. cit.*, p. 175.

|| Jackson, *Brain*, April, 1886.

headache and from mental explosions, at one time of good-natured nonsense, and at another, of abrupt, transient, and uncontrollable violence. In her fifth year of residence an occasional seizure of epileptiform character took place, and in her sixth year true epilepsy developed. She is now a genuine epileptic, and manifests no violence. These I consider to be all examples of *l'épilepsie larvée* occurring in patients who are epileptic in the true sense of the term. They have the following points in common—the acts are committed, or the excitement develops, suddenly; the duration is short, and when the storm is over the patient returns to his or her wonted mental condition, until an epileptic fit or another impulsive outburst occurs; and again the patients are either unconscious of their actions, or they will tell you that they could not resist the feeling which prompted such actions. In such mental states as these, various crimes have been committed, and the subject becomes one of special medico-legal interest and importance.

Masked or larvated epilepsy bears an affinity to recurrent mania on the one hand, and somnambulism on the other. In connection with the latter I would refer to a case reported by Dr. Yellowlees,* of "Homicide by a Somnambulist." He was a man aged 28 who, as a child, was dull and stupid, slow at learning in school, and awkward and inept when he began to work, and he was generally recognised to have a "want about him," but the mental deficiency was not obtrusive. He was always of temperate habits, and in regular employment. From earliest years his sleep had been restless and troubled by dreams, and latterly he took to walking in his sleep, and to commit strange acts, being asleep all the while, and he had no recollection of these nocturnal occurrences unless wakened at the time. After his marriage these acts became more frequent, and assumed a more terrible form. He would suddenly start from bed, and the usual feeling he had was that a wild beast had entered his room, and, believing he was struggling with the beast he, on several occasions, dangerously assaulted his wife, father, and other persons. In one of these attacks he killed his child. "About 1 A.M. he saw a wild beast of some kind rise up through the floor and jump on to the bed to attack his child. He seized the animal and dashed it against the wall or floor to destroy it. His wife's screams recalled him to himself, and he found to his horror that he had fatally injured his child." The family history is exceedingly interesting, and bears out the analogy to epilepsy. "His mother suffered nearly

* Yellowlees, *Journal of Mental Science*, October, 1878.

all her life from fits, and died in one. His maternal grandfather died in a fit. His maternal aunt and her son were both insane and inmates of an asylum. His brother died from convulsions in infancy, and the child whom he killed had been dangerously ill from convulsions about six months previously." Comparing and contrasting this case with the cases of M. B. (VIII) and H. J. (IX), we find that the former assaulted his neighbours in paroxysms of excitement, believing he was fighting the devil, and the latter is a case of nocturnal epilepsy in which the violent impulses occur during the day. To both of these patients portions of time are completely lost; the one complains of "having been in the grave," and the other "feels like dead for a few seconds." Still in connection with larvated epilepsy, I would refer to case XXIV, in which the ordinary convulsive seizures appear at times to be represented by periods of profound stupor.

With regard to the epileptic convulsions themselves, all the patients take fits which respond to the classical description of attacks of *grand mal*, and a few, such as Nos. IV, IX, and XXIX have attacks of *petit mal*, but these need no special reference here.

Although none of the cases are entirely free from fits by day, those which approach the purely nocturnal form of epilepsy are IX, XXIV, XXV, and XXVII, and of these the first and last have been referred to above, as examples also of the larvated form. It sometimes happens, as illustrated by case XIII, that at first the attacks are entirely nocturnal, but after a time they occur by day as well. Nocturnal fits may very readily be overlooked when the patient, not insane, sleeps by himself, the only indications of anything unusual having happened may be muscular pains, headache, and a feeling of mental dulness or drowsiness. Important elements in the diagnosis of such cases would be the appearance of blood-stains on the pillow from the biting of the tongue, and the bed being wet from the involuntary evacuation of urine.

Of 1,000 cases in which the presence or absence of a warning was noted, Dr. Gowers* found that some aura existed, at least occasionally, in 505 and was always absent in 495. Of the 32 cases recorded here an aura is sometimes but not always present in 12, always absent in 13, while in 7 its presence or absence cannot be ascertained. The various forms of aura are almost innumerable. "There is scarcely," says Dr. Sieveking, "an impression referrible to the nerves of common or muscular sense, or of the special senses,

* Gowers, *op. cit.*, pp. 43-70.

which does not occasionally indicate the approach of an impending fit.* According to the classification of Dr. Gowers, six forms of aura are illustrated by the twelve cases in which an aura has been discovered. 1. *General aura.* In case XII, when he first became epileptic, muscular twitchings of the arms and legs warned him of an impending fit. 2. Four have a *visceral* or *pneumogastric* aura; two of them refer the sensation to the epigastrium, one (XXVIII) describing it "like worms going round and round," and the other (XVI) feels something rising from the epigastrium to his throat or his head. In the two others the aura is referred to the chest, one (VIII) experiences something "like a knife going through him," while in the other (XXVI) the sensation is as if "something alive were in her breast." 3. Two (I and XXIX) have complained of *vertigo* prior to a fit. 4. One patient (VI) occasionally feels like a weight on his forehead, and has the sensation as if he were falling backwards. Another (XXXI) complains of a "dot," sometimes in her head, sometimes in her eyes, but the exact nature of the "dot" cannot be ascertained. These two may be classed as examples of the *cephalic* aura. 5. A *psychical* aura is observed in two. In case XXXIII it is an emotion of fear, and in case IX it is described "like a flash of lightning driving his thoughts away." 6. In the last case (IV) there are *special sense warnings*, visual and gustatory. The patient sees like another man's eye, with his right eye, and he sometimes also complains of a quivering of the lids of the same eye. He cannot describe the gustatory aura further than that it is a "bad taste." Dr. Gowers says that a true gustatory aura is among the rarest forms of warning, and in one of his cases there was a "metallic taste in the mouth like copper, with a simultaneous sensation in the thumb and forefinger of the left hand as if they were being pinched with a hot iron, the sensation then passed to the other fingers, and then up the arm to the side of the face and down the body to the leg, and seemed to go out at the great toe." Now, my patient is sometimes warned of a fit by a burning sensation in his right foot, but this does not appear to be simultaneous with the gustatory sensation. Occasionally the convulsions in this case are left-sided, but I am unable to determine whether these are preceded by the right-sided auræ.

Of the arrest of fits by a ligature (Odier) or blister (Brown-Séquard) round the limb in which the aura starts, I have had no experience.

* Winslow's *Obscure Diseases of the Brain and Mind* (1863), p. 394.

The next point for consideration is the *aetiology* of epilepsy. As in other diseases, the causes may be divided into remote and proximate. By far the most important of the remote causes is *hereditary predisposition*, not only to epilepsy but to insanity and other allied neuroses. That neuropathic tendencies exist more frequently than is known is presumable from the fact that their presence cannot always be ascertained, either from a desire to conceal on the part of the patient or his relations, or from the family history of the patient being unknown. In investigating this point I have only been able to ascertain regarding epilepsy, insanity, and—if it may be regarded as a neurosis—intemperance. Inquiries as to the existence of other nervous diseases have been unsatisfactory. In one case no family history was obtainable, and of 31 cases, hereditary tendency to either of the three above mentioned neuroses was traced in 19 cases, epilepsy alone in 9, insanity alone in 3, epilepsy and insanity in 4, intemperance alone in 2, and all three in 1 case. As the number of cases is much too small to make a percentage estimation, the proportion of cases in which hereditary tendencies were established was found by Gowers* in 1,218 cases to be 35 per cent, by Echeverria in 300 cases 28 per cent, and by Reynolds from a smaller number 35 per cent.

Age is certainly an influential factor in the causation of epilepsy. The following table shows, in quinquennial periods, the ages, as nearly as could possibly be ascertained, at which the disease first showed itself in 27 cases.

Age.	Cases.
Under 5 years,	12
5 years and under 10 years,	4
10 " " " 15 "	6
15 " " " 20 "	0
20 " " " 25 "	3
25 " " " 30 "	2

An exciting cause has been traced in 17 of these cases, and the relation it bears to the ages may fitly be considered here. Of the cases under 5 years, a congenital defect exists in 5. The first convulsions occurred during the period of the first dentition in 3, and 1 is the subject of infantile hemiplegia. Fright was the cause in 3 cases between 5 and 10 years, and in 1 between 10 and 15. The other causes operate in single cases—viz., between 10 and 15 a blow on the head caused the fits in 1, and in another the first convulsions appeared during

* Gowers, *op. cit.*, p. 8.

an attack of scarlet fever; between 25 and 30, intemperance and mental shock were the causes. Hereditary predisposition exists with one or other exciting cause in 10 cases. In 2 of the 3 cases in which epilepsy developed during the first dentition, the convulsions ceased for several years, and returned in 1 at 9 years and in the other at 13 years. Excluding the congenital cases and the case of post-hemiplegic epilepsy, I should consider that, apart from a pre-existing neural instability or unrecognisable but abnormally excitable condition of the nervous elements, the above enumerated exciting causes would have been inoperative in the production of epilepsy or insanity.

Although many insane epileptics are strong and robust, in most of them the general health is below par. In the foregoing cases the two associated organic bodily diseases are phthisis pulmonalis and cardiac disease. Each occurs alone in three cases, and both together in one case. The cardiac disease assumes the form of mitral regurgitation in two, and aortic obstruction in two. In no case are there subjective symptoms of cardiac disorder, nor does the organic lesion appear to influence the mental or epileptic conditions. In many instances the circulation is very languid; the extremities cold, livid, and puffy. Gastro-intestinal disturbance is of no infrequent occurrence among them, nor is this to be much wondered at considering the voracious appetites they usually display, and the tendency therefrom to overload the stomach. This fact is of importance in connection with the dietetic treatment of such cases. I have seen one man who had had no fits for several months, and in whom they recurred with unusual frequency after a too hearty Christmas dinner. Many similar instances are on record, and Dr. Campbell* relates the case of a patient who succumbed to a succession of fits after such a dinner. I have only observed a refusal of food in three cases, and in two of them tube-feeding was necessary.

Acute or sub-acute bodily disease has in many cases a striking effect on the frequency of the epileptic attacks. In cases XII, XXI, and XXXI there was a complete cessation of fits during an acute illness, and in cases II and XVIII a partial arrest occurred; and in all, the attacks recurred with their usual or increased frequency when convalescence was established.

The physiognomy of the insane epileptic is more easily recognised than described. In the majority of cases here recorded the features are coarse, heavy, and depraved, the face

* Campbell, *Journal of Mental Science*, July, 1886.

generally congested, and the skin thick and greasy. The expression is either sullen and morose or dull, apathetic, and indicative of mental hebetude.

Regarding the effect of the epileptic attacks on the temperature of the body, I have made no observations; but where epileptiform convulsions occur in the progress of general paralysis, an accompanying elevation of temperature is invariably found; in one such case, where the convulsions occurred periodically, the pyrexia was always associated with most profuse perspiration, and once in this case a temperature of 104·4° F. was recorded.

The *urinology* of the insane is a subject which has not hitherto received the attention which it seems to merit, probably from the difficulties which beset its investigation. It is true that a considerable amount of attention has been directed to the occurrence of post-epileptic albuminuria and glycosuria; but, withal, these questions have not been satisfactorily settled. A quantitative analysis of the urine, however, is seldom undertaken either in cases of epilepsy or insanity. The number of cases here recorded in which either a qualitative or quantitative analysis has been conducted is much too small, and the latter analysis in many respects too incomplete, to enable one to formulate general conclusions therefrom; but the results obtained may be worthy of some special reference.

As a result of an inquiry into the occurrence of albuminuria in healthy people, Professor Grainger Stewart* gives the following as some of his conclusions:—That albuminuria is much more common among presumably healthy people than was formerly supposed; that moderate muscular effort rather diminishes than increases albuminuria; and that it is often induced by violent and prolonged exertion. It would, therefore, naturally be expected from these conclusions that albumen in the urine would be of frequent occurrence among epileptics, and that a larger amount would be found after severe than after slight convulsive seizures. Huppert† computes that it occurs after every attack, while many other observers rarely find albumen in the urine after fits. I have not systematically examined the urine first passed after a fit; but, as above stated, samples were taken at different periods of the day irrespective of the occurrence of fits; and of 31 cases so examined, albumen was found, at one time or other,

* Stewart, *British Medical Journal*, 11th June, 1887.

† Huppert, *Archiv für Psychiatrie* (1877), p. 189. (Gowers, *op. cit.*, p. 106.)

in no fewer than 21, excluding one (case XII) in which albumen was present in the urine during an acute illness. I have further observed that in cases where albuminuria existed apart from the occurrence of fits, the quantity of albumen was perceptibly greater during epileptic periods. In an investigation conducted by Dr. Turner* on albuminuria in the insane, he found that of 30 cases of epilepsy 11 had albumen in the urine. In most of my cases the quantity of albumen was very small, but no urine was pronounced albuminous from the indication of one test only. All the specimens were not microscopically examined, but, in those which were, no tube casts were discovered.

If sugar occurs in the urine of epileptics, I think it must be extremely rare. In no one of the specimens tested by me did sugar exist. Fehling's solution was certainly reduced in many instances to a green or brownish fluid, but this only occurred when the urine was excessively acid and contained urates, uric acid, or oxalate of lime crystals.

With regard to the quantitative analysis, the fact that the whole of each day's urine could not be saved detracts very much from the satisfaction of the results. In cases where the whole amount was saved the quantity was never excessive, but generally below the normal, and the specific gravity was almost invariably low. Of 136 specimens of twenty-four hours' urine, the reaction was acid in 123, neutral in 12, and alkaline in 1. Sulphates and chlorides were excreted with more uniformity than the phosphates and urea, and their average amount was within normal limits, although on several occasions the quantity of both, especially of chlorides, was small. The elimination of phosphates and urea was very irregular, but in no instance was either constituent in excess, and only a very few times was the normal amount even approximated. In eleven out of the fourteen cases a certain relationship could be traced between the relative increase and diminution of urea, and the increase and diminution of phosphates, more especially the alkaline phosphates. The normal proportion of earthy phosphates is regarded as one-third of the total phosphatic excretion, and in half of my cases this proportion was considerably increased, not from excess of earthy phosphates, but from diminution of the alkaline, and several times the actual amount of earthy exceeded that of alkaline phosphates. The influence of epileptic attacks on the excretion of phosphates and urea was noted with somewhat variable results. Calculations per 1,000 parts of urine were necessary

* Turner, *British Medical Journal*, 17th December, 1887.

where the total daily amount could not be saved, and the estimation of averages therefrom, for epileptic and non-epileptic periods, must be acknowledged to be not altogether free from fallacies. Of 10 cases in which fits occurred during the period of investigation, the amount of urea excreted on the day the fits took place was relatively increased in 7 and diminished in 2; the phosphates as a whole were relatively increased in 4—in all of which the increase was greater in alkaline phosphates—and in 2 the alkaline phosphates alone were increased; in 3 the phosphates were relatively diminished, and in 1 there was no appreciable alteration in either phosphates or urea. It is important to observe that a sediment of phosphates in a urine, or a precipitate of them occurring on heating the urine, is no indication of their being in excess, for on several occasions when they were precipitated by heat, their actual quantity was considerably lower than normal; it merely shows that the urine is not sufficiently acid to keep them in solution.

Conflicting views have been promulgated with reference to the relation between cerebral activity and the elimination of phosphates in the urine. Dr. Zeulzer maintains, that in conditions where there is increased irritability of nervous tissue, phosphoric acid in the urine is diminished, and that in depressed conditions the phosphoric acid is increased. Dr. Mairet* concludes that phosphoric acid is closely related to the nutrition and function of the brain, and that during a period of activity the brain absorbs phosphoric acid in combination with the alkalies, and gives up phosphoric acid combined with the alkaline earths, indicated in the urine by a diminution of the former and an increase of the latter, and he finds that these conditions obtain in cases of epilepsy, melancholia, and mania, and in all psychical manifestations. From the former theory we should expect, that in epileptics as a class, from the nervous excitability present in them, the phosphates would be diminished, and that a further diminution would occur after fits, from the increased molecular changes which, presumably, the convulsions occasion. If Mairet's view be correct, an epileptic seizure should be followed by increased elimination of earthy phosphates, and diminution of alkaline phosphates. Now, Lépine, Jacquin, and Birt,† found a decided increase of earthy phosphates and an extraordinary failure of alkaline phosphates in the urine first collected after the nervous discharge. In my cases the proportion of earthy phosphates was excessive in

* Mairet, "De la Nutrition du Système Nerveux" (*Archives de Neurologie*, July, 1885, p. 76).

† Birt, *Brain*, October, 1886.

many instances irrespective of fits ; but on days when epileptic attacks took place the alkaline phosphates were, in most cases, relatively increased. It must be observed, however, that my analysis represents the condition of the twenty-four hours' urine, and not that of the urine first passed after a fit. May it not be, then, that the increased cerebral activity which accompanies the neural discharge, and is represented by diminished alkaline phosphates in the urine, is usually succeeded by a much longer period of dulness and cerebral inactivity, and that an increase of alkaline phosphates occurring during this period, more than counterbalances the antecedent diminution ?

Notwithstanding that epileptics, or rather insane epileptics, are generally irritable, and their nervous tissues in a more or less constant state of chronic excitability, they do not always manifest the same degree of cerebral activity, and hence a probable explanation of the variations in the excretion of phosphates, which are observed apart altogether from the occurrence of epileptic attacks.

The question of alimentation has not been lost sight of in these observations, and it may be stated that fluctuations in the elimination of phosphates and urea cannot be attributed to alterations in diet, at least in these cases.

The urinary analysis which I have conducted would point to the following conclusions :—1. Albuminuria is very common among the epileptic insane, irrespective of the occurrence of convulsions. 2. Glycosuria is rarely met with. 3. The average daily quantity of urine is small and the specific gravity low. 4. Urea and phosphates are very deficient, and the phosphates are diminished at the expense of the alkaline. 5. In some cases, at least, there is a relative increase of urea and phosphates, especially alkaline phosphates, on days when fits occur.

The *deep reflexes* were frequently tested in every case, except one in which only a single observation was made. The examinations were not made at definite intervals of time after epileptic seizures, but in many instances the exact number of minutes or hours was noted, and will be found under the individual cases. The results of my observations have been, that of 32 cases the knee-jerk was markedly in excess at one time or another in 27, slightly exaggerated in 2, deficient in 2—in one of which it was occasionally in abeyance, and habitually normal in 1. Ankle-clonus was present at one time or another in 23 cases, and in 9 it could never be elicited. Although, excluding the case of post-hemiplegic epilepsy, an

habitually exaggerated condition of the knee-phenomenon was present in 20 cases, including all the females (12) and 8 males, ankle-clonus was found invariably present in only two cases (XIII and XXVII), on the right side in the former, and on the left side in the latter. In one case (IV) I failed to elicit a knee-jerk two hours after a fit, on account of muscular rigidity, and in case XV ten minutes after a fit, while in case V it was in abeyance for a few seconds only, immediately after the muscular spasms had ceased. In some other cases not recorded here, I have likewise observed a temporary abolition of knee-jerk immediately following an epileptic attack. In cases where exaggeration of knee-jerk is not the invariable condition, I have not found it more frequently or more markedly in excess the nearer the time of examination was to the occurrence of a fit. With regard to ankle-clonus in this respect, I have obtained it in four cases immediately after fits, in one case twenty minutes after, and in another forty-five minutes, and at no other time in these cases. Its very evanescent character is well shown in Case V, where it lasted no longer than three minutes. In Case VII ankle-clonus was not present half an hour after an attack, but in two hours and at various longer intervals it was readily elicited; in Case XXII it was present five hours, but absent four hours after a fit. In the case of post-hemiplegic epilepsy (XXXII), on two occasions when a fit occurred, and the reflexes were tested fifteen minutes and an hour and a half later, the ankle-clonus which is habitually present could not at first be elicited; the same is true of Case XIII, fifteen minutes after a fit, and of Case XXIV—a patient who usually has no foot-clonus—forty-five minutes after a fit; and in all these instances the phenomenon developed under observation, and became exceedingly well marked. In most other cases where ankle-clonus was observed, the interval between the occurrence of an epileptic seizure and the time of testing exceeded a period of six hours. It is not at all uncommon to find ankle-clonus with no excess of knee-jerk, and exaggerated knee-jerk without the presence of ankle-clonus. These conditions have been pointed out by Fleury,* who found in eight cases ankle-clonus associated with normal knee-jerk in five, and with feeble or absent knee-jerk in three. In cases of functional paralysis, Buzzard† usually finds exaggerated knee-phenomenon and ankle-clonus associated with absent or very weak plantar reflex. This association I have not found to obtain in cases of epileptic insanity.

* Fleury, *Revue de Médecine*, August, 1884. (*Brain*, October, 1885.)
† Buzzard, *Brain*, January, 1888.

The abolition of knee-jerk, with subsequent exaggeration and the presence of ankle-clonus after epileptic attacks, have been observed by Westphal, Hughlings Jackson, Gowers, and Beevor. Considering the various conditions which affect these phenomena, and the delicate and complex neuro-muscular mechanism which controls them, it is not surprising that, as yet, no satisfactory explanations have been afforded regarding them. After an epileptic attack we find a variable amount of motor weakness, although the extent of weakness may not be proportionate to the severity of the convulsive seizure, and associated with this is what Dr. Hughes Bennett* refers to as "the apparently paradoxical condition of increased muscular tonicity," evidenced by exaggerated tendon reflexes; and in epilepsy, at least, we must refer to the central nervous system as the source of this morbid state of matters. If, as Dr. Bennett assumes, the essential factor in the production of muscular hypertonicity is an increased excitability of the ganglion cells in the cord, the question comes to be, What are the various processes which conduce to this condition of increased excitability? Various theories have been advanced in explanation, three of which will be referred to and may be designated;—1. Inhibitory; 2. Cerebellar; 3. Irritative.

The Inhibitory theory is based on the hypothesis of "loss of control," by the cutting off of the reflex centres in the cord from the higher regulating centres in the cerebrum. An exhaustion of the fibres of the pyramidal tract is induced by over-action, or what Dr. Hughlings Jackson terms a "discharging lesion" of some part of the mid-cortex, so that efferent impressions cannot be conveyed.

The Cerebellar theory seems a modification of the Inhibitory. It is supported, among others, by Drs. Hughlings Jackson and Bastian, and presupposes that the cerebellum exerts an excitatory influence on muscular tonicity, and that the cerebral control, being removed, the cerebellar action is thereby unopposed.

Admitting that the cerebellum has an influence in producing muscular tonicity, this and the inhibitory theory might account for some, but not all, of the post-epileptic reflex phenomena. The exaggerated knee-jerk and the presence of ankle-clonus might be explained by either, but I fail to see how that temporary abolition of knee-jerk and ankle-clonus, which, being habitually present, is in abeyance after a fit, can be interpreted by "removal of control." Again, if returning consciousness is any indication of a progressive restoration in

* Bennett, *Brain*, January, 1888.

the other cerebral functions, reflex hyper-excitability ought then to disappear, but such is not always the case. It is likewise difficult to admit the probability of suspension of cerebral inhibition, in the variations which occur in the tendon reflexes at intervals of several days after an epileptic attack.*

The Irritative theory is the one advocated by various French writers, including Charcot, and the hypothesis is that, at least in spastic paralysis, in the degeneration of the fibres of the lateral columns is to be found the source of the increased excitability of the ganglion cells. This involves the presence of a structural lesion which, however, cannot be maintained as regards epilepsy, where the abnormal conditions of the reflexes are so variable and transitory. Dr. Hughes Bennett adopts the theory of the French school to a certain extent. He inclines to think "that hyper-excitability of the reflex spinal centres, which is the fundamental element in the causation of hypertonicity of muscle, from whatever cause it arises, is an active rather than a passive process," that it may be "due to idiopathic alterations of the cells themselves, or may be induced therein by influences emanating from the brain, the cord, or the peripheral nerves," and that the changes are nutritive rather than degenerative.

This Irritative theory, as modified by Dr. Hughes Bennett, seems to my mind to afford a better explanation of the varying degree of reflex excitability found in epileptics than either the Inhibitory or Cerebellar. "Morbid excitability is the essence of epilepsy," and if an inherent instability exist in the cells of the motor area of the cortex, may the same condition not obtain in the ganglion cells of the cord, predisposing to explosions in both, by the occurrence in them of some nutritional change? The fact that in epileptic insanity occasional exaggeration of reflexes is observed, irrespective of convulsive attacks, would lead to the view that the irritative process took place in the spinal cells themselves, and was not always secondary to or induced by changes in the cerebral elements. The temporary abolition of reflex phenomena might be explained on the hypothesis that if the irritation process be excessive a condition of exhaustion is induced which leads to inactivity, whereas, when it decreases or is moderate from the outset there is a condition of hyper-excitability, and we

* Gowers has suggested that close upon the anterior horns are small inhibitory centres, and post-epileptic exaggeration of knee-jerk has been explained by supposing an exhaustion of these centres, and abolition of knee-jerk by exhaustion of the "muscle centres" in the anterior horns, in addition to the exhaustion of inhibitory centres.

find an exaggeration of the deep reflexes. The presence of ankle-clonus without exaggerated knee-jerk, and of exaggerated knee-jerk without ankle-clonus, would favour a view that each phenomenon is represented by a different centre in the cord.

Adopting the Irritative theory as I have done, I am led to the following conclusions:—1. The various conditions of reflex phenomena found in epileptic insanity depend on hyper-excitability of the ganglion cells of the cord; 2. The hyper-excitability is caused by irritative changes arising in the cells themselves; 3. The alterations are nutritional, and not, at first at least, dependent on a degenerative lesion; 4. Knee-jerk and ankle-clonus are governed by separate centres in the cord.

Probably no part of the subject of epilepsy has received more attention than the *treatment*, and probably in no disease has a greater number of remedies been tried. In recent times the efficacy of nearly every new pharmaceutical invention is tested, and in most cases with no better results than in the days "when human kind was drenched in superstition," and the brain of a mountain goat was regarded as an infallible cure for epilepsy in a child, or it was recommended to bury alive a black cock, with a lock of the patient's hair and some parings of his nails, on the spot where the fit occurred.

The treatment is empirical, and so it must continue until the obscure nature of the pathology of the disease is revealed. Of the innumerable remedies which at one time or another have been advocated, I have selected seven, and have noted their influence on the foregoing cases. It must be premised that these cases are, as regards their epilepsy and insanity, presumably hopeless of recovery, and that they cannot be considered as well adapted for therapeutical investigation, and yet it might be argued that remedies which, in some way or another, proved beneficial in ameliorating their condition, would be of still greater benefit in more recent and favourable cases. The details of treatment have been fully referred to under each individual case, and a few general remarks alone remain necessary.

Bromide was employed in 29 cases, antimony in 19, antimony with aconite in 8, arsenic in 18, zinc in 8, and borax and chloral each in 6. A general idea of the influence of each in arresting or diminishing the frequency of the epileptic attacks may be obtained from the following table:—

Drugs.	No. of Cases.	Fits Arrested.	Fits Diminished.	Not Improved.	Fits Increased.	REMARKS.
Bromide, .	29	11	17	1	—	Acneform eruption in a few cases.
Antimony, .	19	—	2	11	6	Gastric disturbance in one case.
Antimony and aconite, .	8	—	3	4	1	
Arsenic, .	18	—	4	11	3	Physiological action in two cases.
Zinc, .	8	—	2	5	1	
Borax, .	6	—	5	1	—	
Chloral, .	6	—	—	5	1	Stupor induced in five cases.

Of the 29 cases in which bromide was used, the fits were arrested, during the period of administration, in 11, their frequency reduced in 17, and 1 was not improved. In no case were the fits increased, and in none were unfavourable symptoms caused by the drug beyond an occasional acneform eruption in a very few cases, which readily subsided under a short course of arsenic. Along with cessation or diminution of fits there generally occurred an improvement in the mental condition. Patients who were subject to paroxysms of violent excitement after fits did not have these, nor did they become excited without the fits; and others whom the attacks rendered dull and stupid became brighter, more intelligent, and cleaner and more tidy in their habits and personal appearance. In most cases better results were obtained from three daily doses of 15 or 20 grains than from 60 grain doses at night, and this is true of cases in which the greater number of fits was nocturnal. Occasionally the bromide acts immediately, but more usually, and especially when an epileptic habit has become established, it takes a few days to produce an effect, and then the attacks become gradually more infrequent. Most of the cases indicate that it should be given regularly and for protracted periods. In none of the nocturnal cases did it arrest the fits, and the only case which was not benefited was a nocturnal one.

The experience of most observers shows that of all remedies the most good is to be expected from the bromides in the

treatment of epilepsy. Drs. Gowers,* Hughes Bennett,† and Clouston‡ all testify in their favour. The results of Dr. Bennett's inquiries were, that of 117 cases of epilepsy, in 12·1 per cent the attacks were arrested during the period of treatment; in 83·3 per cent the attacks were diminished; in 2·3 per cent the treatment had no effect; and in the same proportion the number of attacks was augmented. Dr. Clouston says, "Give the bromides regularly and steadily as you give food to your epileptics." He finds that the patients increase in weight while the doses are under 35 grains three times a day, and that nocturnal epilepsy and its attendant psychosis are less amenable to the good effects of bromide than is the diurnal form of the disease. From a series of observations on the blood of the insane, Dr. Macphail § concludes that bromide of potassium improves the quality of the blood in epileptics, and that its prolonged use "exercises no deteriorating influence in decreasing the percentages of haemoglobin and of haemocytes." Dr. Frigerio || finds that bromide of potassium administered hypodermically acts more rapidly and more markedly in diminishing the number of fits in epilepsy than when it is given in the usual manner.

Some physicians who regard bromide as a "dreadful destroyer of nerve function" advocate the use of antimony and aconite, alone or in combination. I have tried antimony alone in doses from $\frac{1}{2}$ to 2 grains thrice daily in 19 cases, with the result that 2 were benefited to some extent as regards the frequency of attacks; 11 were not improved; and in 6 the number and frequency of attacks were increased. Only in one of the cases recorded here was sickness produced by the drug. The combination of antimony and aconite was somewhat more beneficial. Of 8 cases, 3 were improved, 4 not improved, and 1 became worse.

Arsenic was used in 18 cases, of which 4 were improved, 11 not improved, and in 3 an augmentation of fits occurred. Two cases manifested physiological symptoms, one of them after only 18 days' treatment. Dr. Gowers found that arsenic added to bromide had no effect on the epileptic attacks.

Of 8 cases in which zinc sulphate was employed, 2 were

* Gowers, *op. cit.*, p. 252.

† Bennett, "Statistical Inquiry into the Nature and Treatment of Epilepsy" (*Journal of Mental Science*, January, 1886).

‡ Clouston, *op. cit.*, p. 416.

§ Macphail, *Journal of Mental Science*, January, 1885.

|| Frigerio, "Archivio, 1875 and 1876" (*Journal of Mental Science*, January, 1877).

benefited, 5 not improved, and in 1 the fits increased. I have used the oxide of zinc in other cases with no better results.

Considering that in 5 of the 6 cases in which borax was administered the fits became less frequent, and one of these was the case of nocturnal epilepsy uninfluenced by bromide, I think the drug deserves further and more extensive employment.

Chloral was given in 6 cases, and it did more harm than good. In 5 a condition of stupor was induced by 15-grain doses of the drug, and smaller doses had no effect on the mental condition or on the fits, which in one case became increased. Dr. Savage * says of chloral, "it may relieve epileptic furor, but it cannot cure epilepsy." Dr. Blandford † finds that chloral is effectual in diminishing the frequency of fits, and he considers it "one of the most valuable drugs we possess for the treatment of insanity generally." Dr. Julius Kreug ‡ thinks that chloral given at bed-time has a good influence in preventing nocturnal attacks of epilepsy. I may mention with regard to chloral that I have seen excellent results produced by a combination of it with ergotin administered hypodermically in cases of epileptiform convulsions occurring in general paralysia.

With regard to the general management of these patients a few words must suffice. Care must be taken that they do not indulge in surfeits of food. A regular action of the bowels is particularly necessary, and even some demented patients are aware of this fact. During paroxysms of excitement, a few days' confinement to bed, not in seclusion, but in the infirmary dormitory, has a wonderfully good effect in allaying the storm.

A retrospect of the whole of my observations indicated in this paper appears to me to conduce to the following conclusions:—

1. There is a very close relationship between epilepsy and insanity.
2. The nervous disorder is not confined to the higher centres exclusively.
3. The ganglionic centres in the cord are involved, as indicated by the alterations which occur in the deep reflexes.
4. Albuminuria is frequent in the epileptic insane, irrespective of the occurrence of convulsions.
5. Phosphates and urea of the urine are habitually deficient.
6. Of the remedies employed most reliance is to be placed

* Savage, *Journal of Mental Science*, April, 1879.

† Blandford, *Insanity and its Treatment* (Third Edition), pp. 281 and 433.

‡ Kreug, *Annotation, Journal of Mental Science*, July, 1881.

on bromide, but borax acts in some cases where bromide fails.

Lastly, I would remark that these observations serve to indicate the extent of obscurity in which the subjects of epilepsy and epileptic insanity are involved, and to show that there is yet a wide field for much scientific research, for not until the darkness, which at present enshrouds the various morbid processes at work is illumined, can we hope to fulfil our chief duty and relieve the sufferers from this dread malady.

A CASE OF REMITTENT FEVER IN A CHILD AGED TWO YEARS AND NINE MONTHS, WITH AN IDIOSYNCRASY TOWARDS QUININE.

BY WILLIAM GIBB, M.B.,
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THE following case of remittent fever I have thought might prove interesting to the readers of the *Glasgow Medical Journal* on account of the age of the patient and the scarcity of such cases in the "home country."

On 1st June I was called in to see a European child, aged 2 years and 9 months, a female, whom I found to be suffering from an attack of malarial fever. The child was very delicate-looking, being very anaemic and somewhat emaciated. Prior to this she had had several attacks of the same fever, the exact number being difficult to define, some of the attacks having been of short duration. The child had been resident here for over two years, having been born in Lisbon.

When I saw the child first the temperature was 102·4°, the skin being dry, tongue covered with a thick white fur, the pulse quick and soft. A small dose of calomel was administered, which acted satisfactorily, the first motion being very dark coloured, with a very offensive odour, and the second, half an hour afterwards, being more naturally coloured, with less offensive smell. The parents declared to me that the child had never been able to stand quinine, but, notwithstanding this assertion, I administered 5 grains of sulphate of quinine after the first motion from the bowels. There had been no premonitory vomiting, as is usually the case, and the quinine was easily taken and retained. Two hours later when I saw her the temperature was 104·4°, the skin still very dry, the pulse quick, soft, and weak. A hot bath was adminis-

tered, and the spine well sponged with water as hot as could be borne. After this she perspired freely, and three-quarters of an hour afterwards her temperature was 103° F. Seeing the aversion to quinine on the part of the parents, I gave the child a mixture containing salicylate of sodium (grs. v), with nitrate of potassium (grs. iii), every three hours, and her temperature went down gradually to 101°. It ranged between 101° and 103° for the following two days, the mixture containing salicylate of soda being continued every three hours along with warm sponging of the whole body morning and evening. During this time the child was sleeping well, the tongue was cleaning, the bowels were regular (the motions being more natural than before), and the skin moist. I may here state that there was no fixed part of the day when one could anticipate a rise of temperature, the exacerbations of fever being most erratic. On the morning of the fourth day the temperature was 101°, and I gave a draught containing sulphate of quinine (grs. v), with hydrobromic acid (ms. iv). An hour later her temperature was 103°, and two hours later 104°. A cold pack was then given, and, as the child was very weak, it was kept up for only ten minutes. The temperature fifteen minutes afterwards was 102·4°, and an hour later it was 101·8°. As her pulse was flagging a little, brandy (ms. xx) was given in milk, and repeated every two hours. Two hours afterwards her temperature rose to 103·4°, and, as the child was weak, we did not again resort to cold packing, but repeated the mixture containing the salicylate of sodium. After the second dose, there was profuse perspiration, and the temperature was at this time 102·4°. An hour later it was 101·8°, and the pulse was steadier. The saline mixture was continued for the next day, the temperature ranging between 101° and 102°. As the bowels were rather costive, a small enema of castor oil was administered with good results. The temperature reached 102·4° at midnight, but was 101° when I saw her next morning. As the results of quinine seemed doubtful, 2 minim doses of liq. arsenicalis in simple syrup were administered every four hours, and the salicylate of sodium mixture discontinued. The temperature ranged between 101° and 103° for the next twelve hours, then suddenly ran up to 104·4°. A cold pack was given and kept up till the temperature came down to 101·4°, and a small dose of calomel was also given. Two hours later the temperature was 102°. The arsenic was continued, but the temperature was not evidently affected by it, as it ranged between 102° and 103° for the next twelve hours. The arsenical mixture was discontinued,

and the salicylate of sodium again resorted to, and after the second dose the temperature reached 99°, the lowest it had been since the beginning of the fever. At this stage I thought I should again try the effects of quinine, so I administered 5 grains. An hour and a half after the quinine was given the temperature reached 105°, and the child had convulsions. An enema was given, and the child put into a hot bath for quarter of an hour, and a hot drink administered, as the skin was intensely dry. The salicylate of sodium mixture, containing 6 grains of bromide of potassium in each dose, was ordered, and the temperature gradually fell to 103°, the perspiration at this time being profuse. The convulsions passed off in about an hour. The mixture containing the bromide was repeated every three hours till 18 grains had been given, after which it was reduced to 5-grain doses every four hours. Next morning the temperature was 102·4°, and a consultation was held with another practitioner. He suggested trying small doses of quinine frequently after we had freely moved the bowels. Accordingly, after a free purge of calomel and rhubarb, 2-grain doses of quinine were given every hour. At 11·15 A.M. the temperature was 101·4°. An hour after the quinine was given the temperature was 102·8°. An hour later (quinine still continued) the temperature was 103·8°. Quinine repeated, and an hour afterwards the temperature was 105°. A hot bath was again resorted to (the tendency towards convulsions precluding the idea of a cold pack), with a hot drink, and the salicylate of sodium mixture repeated without the bromide of potass. Two hours later the temperature was 103°, and four hours later 101·2°. This mixture was continued every three hours, and the temperature gradually fell till, on the 21st day, it reached normal, and remained so all that day. Medicines were stopped, and concentrated fluid drinks given frequently with 15 drops of brandy every two hours. During the next few days there was a slight tendency to fever, which seemed to be at once subdued by a dose of the salicylate of sodium mixture. After this a simple tonic was given, and the child continued to do well. At the present time (3rd July) she is making rapid convalescence, sleeping and eating well, able to run about, and quite lively. The diet throughout the fever consisted of beef tea, chicken broth, and milk, administered in small quantities frequently.

The interesting points about the case, I think, are the rapid convalescence after the repeated high temperatures in an apparently weakly child; the high temperature shown

after the administration of quinine; and the antipyretic influence of the salicylate of sodium.

In a record of twenty cases of remittent fever now before me, quinine has not had the same influence in reducing the temperature as the salicylate of sodium has. I have had no good results from antipyrine. Quinine being considered a "specific" for malarial fever, one would expect its antipyretic influence to be much greater than that of the salicylate of sodium; but such has not been my personal experience, nor the experience of a colleague who has been in practice here for the last eight years.

In fifteen out of the twenty cases above referred to there was no cold stage, or at least it had never been recognised. Of all the premonitory symptoms pain in the back of the neck, radiating down the spine, is by far the most common. In fourteen out of the twenty cases it was the first complained of, followed in ten of these by severe vomiting, or, as the patients described it, a severe "biliary" attack. Sickness during the hot stage of remittent fever has not been so marked in the cases under observation as one would expect from the text books; but with few exceptions it has occurred at the earliest stage of the fever.

FATAL CASE OF OBSTRUCTION OF THE BOWELS.

BY J. K. ROBERTSON, M.D., GREENOCK.

WHILE attending during the accouchement of Mrs. S. with her eleventh birth, April, 1887, I was asked to see her little son David, aged 4 years. He was in bed, feverish and having diarrhoea. Treatment not answering its purpose, in two days after I made an examination; the abdomen was hardened and much swollen and the stools semifluid, unnatural looking, and very badly smelling. I then explained to the parents the nature of the disease—that of inflamed bowel glands, probably of strumous nature—and forecast its probable course and protracted duration, as well as its expected favourable termination from a general view of usual good health in the family and the little patient.

Our expectations were happily gratified, and in the middle of March, 1888, he was judged so favourably of by his parents that he was sent to school. He had been three weeks there, when getting out of doors one of these extremely cold nights

of that period, 1st April, he wandered on in his own independent manner, down the esplanade which extends about a mile and a half along the sea-shore, and is fully exposed to the eastern and northern cold winds, and was taken ill. Yet he was at school on each of the next three days; but on the fourth he was seized with alarming symptoms and put to bed. On visiting him that forenoon he appeared quite prostrate, as if suffering from "shock," had dull heavy eyes, eyelids only half opened, was listless and apathetic; sick and vomiting a thin watery yellow fluid in large quantities; this was ejected without apparent effort, and so suddenly that the little patient was thwarted in his manly efforts to avoid soiling the bed-clothes.

There was normal temperature, not too quick pulse, and pain was evinced only on pressure on the abdomen in the left inguinal region. The bowels had moved the day previous, it having been remarked that the motion was unusually colourless, of clayey appearance. This was the last occasion on which the bowels moved. The vomiting continued for a few days pretty constantly, there being no headache or other head symptoms. But the restlessness and confusion expressed in actions of which the motive and meaning were unintelligible, combined with occasionally turned-up eyeballs, vomiting, and flushed face with obstinate bowels, made the question feasible whether brain mischief might not be insidiously working its way. The stomach then began to be tender to the touch, more so than the original seat of pain, and became more and more distended and painful, while the vomiting slackened for a few days. Obstruction of the bowels, which could not be overcome by medicines by the mouth, or by injections per anum, became now the main disease of itself, though its cause and seat might be unknown. To the restlessness, sleeplessness, prostration and pain was now added stercoraceous vomiting. Medicines tentatively employed to move the bowels were followed only by distension, distress, reversed peristaltic motion, stercoraceous vomiting, and further prostration. Ice, blisters, and poultices partially relieved these for a time; and for one, two, or even three days at different times perhaps counteracted the action of emesis. Milk, light soups, and now and then beef tea and switched eggs were tolerated by the stomach in the intervals. Enemata were given generally three times a day, in good quantity, and were very occasionally retained. The only practical result was to prove that the colon was almost necessarily pervious, and that the obstruction was higher up in the bowel than it. Dr. Richmond

was four times visiting as consultant; the prostration was so serious, and the parents so averse to ventral surgical operative interference, that such was not further entertained. Laudanum and bromidia, per anum, relieved the great pain, counteracted the restlessness, and lulled to sleep. But the sleep seemed that of exhaustion in its essence—a result of ebbing physical strength, unaccompanied by revived animation of spirit, or invigoration of muscular force. Treatment might retard, but could not avert the downward tendency; yet it was great cause for satisfaction to have marked relief to unavailing distress effected through these drugs.

The end came after fourteen days, the last gasp occurring about three-quarters of an hour after the pulse became imperceptible at the wrist.

A *post-mortem* examination was made next night, which demonstrated the existence of severe and continued peritonitis. The omentum throughout was thickened and opaque, while in some parts it presented a tough, hardened, coriaceous-like, flesh coloured appearance, which could not be torn by the fingers, but required the forcible use of the knife. There were spots and small tracts of red and blue coloured ecchymosed parts on the peritoneal covering of the bowel. The stomach full, as also the duodenum jejunum and ileum, down to the place of obstruction. The colons were free, and, though not filled, contained a small quantity of the fluids placed there by enemata, and no signs of narrowing or obstruction were visible.

The small bowels, for about a foot backwards or upwards from the ileo-coecal valve, were quite abnormal in their condition, narrowed down in calibre, emptied of contents, having their inner surfaces apparently lying in contact. One portion, about sixteen inches from the *caput cæcum coli* at its proximal end, extending for about six inches downwards to its distal end, was dark-coloured throughout, and very small in calibre. Its proximal and distal ends approached close, giving it a horse-shoe or circular contour, marking it out as a special seat of differentiation from the condition of the other bowel parts, and showing itself as the seat of disease and obstruction especially. There the cause of obstruction was evident. It consisted of firm, fibrous-like bands of cicatricial omentum, twining round the bowel in front and behind, so as to appear as if tied by a cord, especially at the proximal end of the bowel, where the bands were stronger and more cord-like. These, in that position, so tightly obstructed the gut that the bowel contents could not be

pressed through from above into the obstructed part. Other bands extended from this proximal to the approximated distal end of this obstructed and darkened degenerated bowel space, and, doubtless, were the cause of the condition observed throughout the included portion. The bowel extending from this portion to the ileo-cæcal valve was altered in appearance as before said; there were dilated pouch-like portions about the breadth of a finger, of bluish appearance, and intermediate light coloured portions of a constricted look, as if the bowel was here in contact at its inner surfaces and compressed laterally.

Such a case had no chance of cure without freeing the gut from those binding bands: this formidable operation was forbidden. In these circumstances, it only remained to hope that it might possibly be the result of imagination, where the true cause was conjectural, and that if such, a natural or spontaneous cure might be effected, as has been occasionally observed.

It is proper that *post-mortem* reports should be made in all such cases. It might, perhaps, be of some help in determining statistically what chances of particular conditions are likely to present themselves, in cases not having features which point out more particularly to definite bowel localities, and circumstances determined otherwise.

AN INQUIRY INTO THE LIMITS OF HEARING.

(*Concluded.*)

BY J. KERR LOVE, M.D.

THE APPRECIATION OF DIFFERENCE IN PITCH.

THE determination of the smallest fraction of a semitone which can be perceived is a point of much interest and some difficulty. Delezenne* found that when a metal string of 11'47 mm. was so divided that one section was 1 mm. longer than the other, only practised ears could distinguish the difference in pitch. The relative vibration numbers were 1149 and 1145. Wilhelm Weber was able by the ear alone to distinguish tones so exactly that his mistakes at 200 vibrations per second were with intervals of less than 1 vibration. Sauveur perceived the difference between 2

* *Société de Sciences de l'Agriculture et des Arts de Lille.* 1826.

unisonous monochord strings when the one was shortened by $\frac{1}{2000}$ part of the length. The pitch of the note is not given.

Seebeck * could distinguish a difference of one vibration at 1000 per second. He and two violinists could easily distinguish the difference between 2 notes having vibration numbers respectively of 439·636 and 440. By using forks having vibration numbers of 440 and 439·75, Preyer and another musician could easily make out whether the two forks were sounded successively, or if one was sounded twice in succession. Since, however, the experiment was not often repeated, Dr. Preyer does not insist on this ability to appreciate $\frac{1}{4}$ vibration-difference. By another method he examined sounds having vibration numbers from 128 to 1024, and found that the unskilled always detected a difference of 16 vibrations within these three octaves, that a difference of 8 vibrations near C 128, C 256, and C 512 was generally recognised by those unskilled or little skilled ; near 1024 erroneous judgments were obtained with a difference of 8 vibrations. Here unmusical people often failed to distinguish the tones 1016 from 1024 ; 1016 from 1008, and 1000 from 1008. Such errors occurred even oftener when the difference was only 4 vibrations, even at C 256 and C 512. Those practised never made a mistake at 4 vibrations. They erred when the difference was only 1 vibration at 1000 and even at 500.

For his experiments Dr. Preyer * used a Tonometer and a Differential Apparatus made by Herr Appunn. The tonometer contained 33 tones, from C 128 to C 256. The differential apparatus had 25 tones, from 500 to 501, proceeding by tenths of a vibration and then 504, 508, 512, 1000, 1000·2, 1000·4, 1000·6, 1000·8, 1001, 1008, 1016, 1024, 2048, 4096 vibrations. Both were constructed with harmonium reeds and a wind regulator and both were proved by counting beats.

Dr. Preyer finds that nobody can recognise $\frac{1}{10}$ vibration at any part of the scale, that $\frac{1}{5}$ vibration cannot be certainly recognised either at 500 or 1000. The most skilful always recognise $\frac{3}{10}$ and $\frac{4}{10}$ vibration at 500 after sleep and amid other circumstances favourable for perception. Such keenness Dr. Preyer found only amongst violin-players, tuners, and musical instrument makers, also in a clinical student accustomed to the use of the stethoscope, and in a linguist, but not

* *Poggendorff's Ann.* 1846.

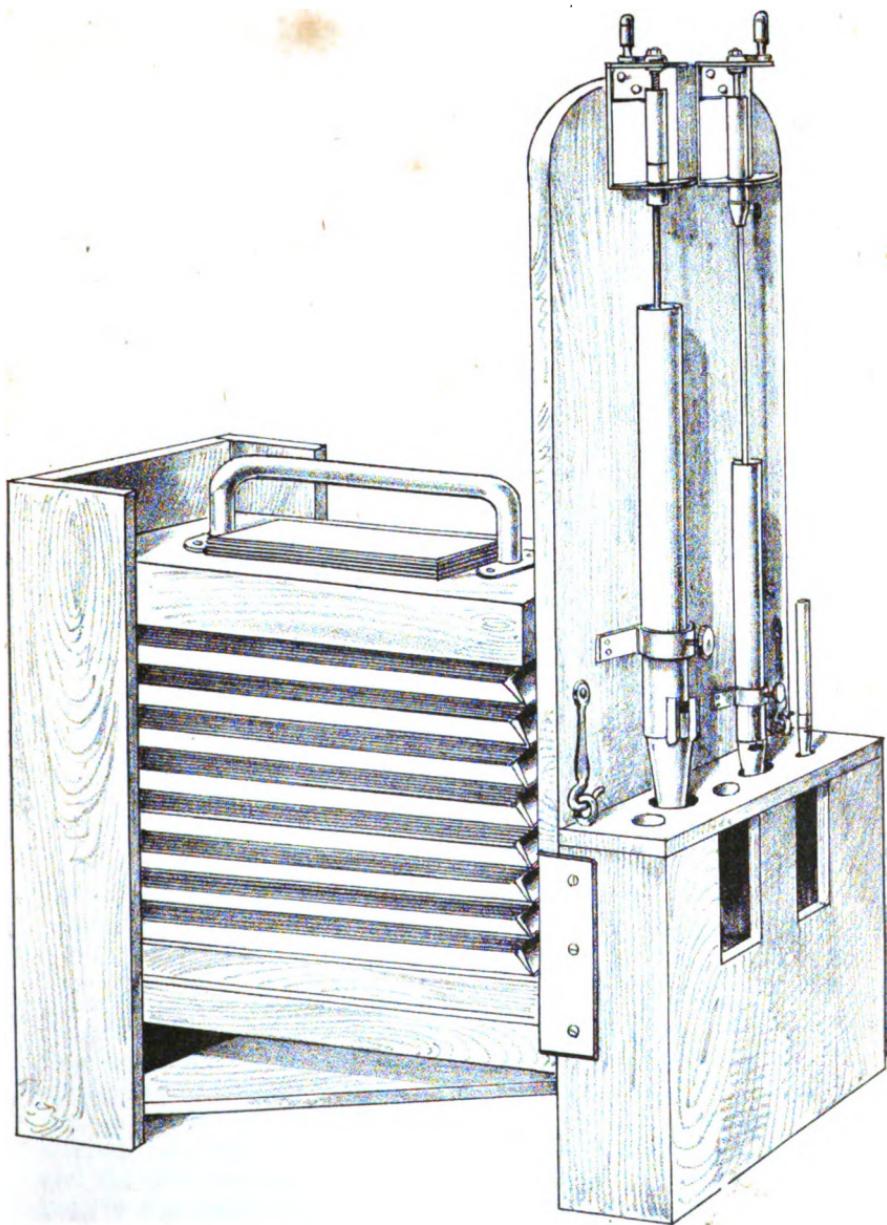
† *Ueber die Grenzen der Tonwahrnehmung* (Jena, 1876), pp. 28-35.

usually in pianists. A few weeks' training with the instrument makes observers proficient in discriminating pitch, and training has reduced Dr. Preyer's minimum from a whole to a half vibration when the tones are near 500. He is not so sensitive at 1000 as at 500. Herr Appunn always recognises 1000 from 1000·5, but not 1000 from 1000·25, and not 500 from 500·2. The extreme limits appear to be 500 to 500·3, and 1000 to 1000·4.

The instrument I use for testing appreciation of small differences of pitch consists of closed organ pipes, which can be shortened or lengthened by movable stoppers. The stoppers are controlled by very carefully adjusted screws having a known number of turns to the inch. At the top of each screw is a horizontal index-plate round which a pointer turns. The plate is graduated to twentieths of its circumference, and as the screw is moved by the turning of the handle of the revolving pointer, the pipe can be lengthened or shortened by an amount corresponding to any distance greater than that represented by a twentieth of a turn. The figure shows the instrument.

The two screws I use have 21 and 42 turns to the inch respectively. The stoppers can be made to advance or recede within the pipe through any distance from 3 inches, the entire length of the screws, to $\frac{1}{420}$ or $\frac{1}{840}$ of an inch—the value of a twentieth of turn for the screws respectively.

Behind an upright to which the screws and pipes are fastened is the bellows which supplies the pipes with wind. This falls through a short distance—about 2 inches under a weight of three or four pounds, producing a note from the pipes of from $1\frac{1}{2}$ to 2 seconds in duration. The fall of the bellows is checked by its contact with two horizontal bars placed at its ends. Unless thus checked the tone begins to flatten appreciably when the supply of wind is almost exhausted. The note is brought to even a better and sharper termination if the bellows be caught up by the handle, the chief use of which is to raise the bellows preparatory to its fall. The bellows descends between anterior and posterior and lateral black-leaded slips which prevent rocking. The same loudness, duration, quality, and steadiness of successive tones is thus ensured, for the sounds are produced by the same volume of air expelled under a constant pressure. The pipes I have used chiefly are the 1 foot 6 inches and 3 inches closed pipes giving notes of 256, 512, 1024, and 2048 vibrations per second. The 3 inches pipe produces the two latter notes at its upper and lower ends respectively. Longer pipes than the largest



of these make the instrument clumsy. The body of the pipes is made of brass to allow of the fitting of air-tight stoppers and of the application of a clamp to prevent the rising of the pipe under the application of the screw. A movement of the stopper through a given distance produces a different interval at different parts of the scale. For the coarser screw I found that 8 turns produced an interval of a semitone at the 512 C; 16 turns were required for the same interval at middle (256) C, and 4 and 2 turns for the two upper C's respectively. For the finer screw, of course a similar interval required twice the number of turns. Hence the necessity in stating the relative sensitiveness of two ears or the result of several observations on the same ear to give the pitch at which the experiment was tried, or at least to translate the reading of the screw into one of an absolute interval.

(Another reason for giving the absolute pitch, or at least for giving the pitch to the nearest tone or semitone, is that the ear is said to be sensitive in a very different degree at the various parts of the scale.)

TABLE SHOWING VALUE OF SCREWS IN FRACTIONS OF A SEMITONE.

	1 TURN.		$\frac{1}{2}$ TURN.		$\frac{1}{4}$ TURN.		$\frac{1}{8}$ TURN.	
	Fine Screw.	Coarse Screw.	Fine Screw.	Coarse Screw.	Fine Screw.	Coarse Screw.	Fine Screw.	Coarse Screw.
256	$\frac{1}{2}$ sem.	$\frac{1}{8}$ sem.	$\frac{1}{4}$ sem.	$\frac{1}{16}$ sem.	$\frac{1}{8}$ sem.	$\frac{1}{16}$ sem.	$\frac{1}{16}$ sem.	$\frac{1}{32}$ sem.
512	$\frac{1}{4}$ „	$\frac{1}{8}$ „	$\frac{1}{8}$ „	$\frac{1}{16}$ „	$\frac{1}{8}$ „	$\frac{1}{16}$ „	$\frac{1}{16}$ „	$\frac{1}{32}$ „
1024	$\frac{1}{8}$ „	$\frac{1}{16}$ „	$\frac{1}{16}$ „	$\frac{1}{32}$ „	$\frac{1}{16}$ „	$\frac{1}{32}$ „	$\frac{1}{32}$ „	$\frac{1}{64}$ „
2048	$\frac{1}{16}$ „	$\frac{1}{32}$ „	$\frac{1}{32}$ „	$\frac{1}{64}$ „	$\frac{1}{32}$ „	$\frac{1}{64}$ „	$\frac{1}{64}$ „	$\frac{1}{128}$ „

In using this instrument in the testing of the hearing of considerable companies, I wrote out a list of 15 to 35 tests, to which the observers were asked to listen. Each test was applied as follows:—A note in the neighbourhood of one of the C's was sounded and repeated, after which the screw was altered. As rapidly as possible the changed note was sounded, and the observer asked to put down his opinion of the third note in the words flat, sharp, or unchanged. Observers were seated as far apart as practicable, the working of the screws was hidden by a screen placed before them, and every precaution adopted to fix the attention of the observers on the experiment. They were asked never to guess, but, on the

other hand, to give their ears the benefit of the slightest impression formed just after the sounding of the third or altered note. Under each octave several blank tests were given, to accustom the ear to the pitch; and in judging of the capacity of any ear, more emphasis was put on the later than on the earlier tests. The following is an example of a set of tests:—

1. $\frac{1}{2}$	semitone sharp,	256 C.	12. $\frac{1}{16}$	semitone flat,	1024 C.
2. $\frac{1}{8}$	„ flat,		13. $\frac{1}{32}$	„ sharp,	
3. $\frac{1}{16}$	„ sharp,		14. $\frac{1}{64}$	„ flat,	
4. $\frac{1}{32}$	„ sharp,		15. $\frac{1}{128}$	„ sharp,	
5. $\frac{1}{64}$	„ flat,		16. $\frac{1}{256}$	„ flat,	
6. $\frac{1}{128}$	„ sharp,		17. $\frac{1}{512}$	„ flat,	
7. $\frac{1}{256}$	„ flat,		18. $\frac{1}{1024}$	„ sharp,	
8. $\frac{1}{512}$	„ sharp,		19. $\frac{1}{2048}$	„ flat,	
9. $\frac{1}{1024}$	„ sharp,		20. $\frac{1}{4096}$	„ sharp,	
10. $\frac{1}{2048}$	„ flat,		21. $\frac{1}{8192}$	„ sharp,	
11. $\frac{1}{8192}$	„ flat,				

Results got by this method can only be taken as representing roughly the capacity of any individual observer. In spite of my precautions guessing was probably adopted by some observers, and in such large companies little incidents occur which divert the attention from the business in hand. In testing pianists, violinists, and other trained observers, I have generally taken observers individually or in companies of two or three. But the observations with even the largest of the companies may be taken to represent the capacity of the class to which they belong, and are useful and quite reliable in making comparative statements of the capacity of such class.

The first tests were applied to 22 members of the 38th Company of the Glasgow Boys' Brigade. The ages of these ranged from 10 to 17 years, and the tests included intervals varying from $\frac{1}{2}$ to $\frac{1}{16}$ semitone. Five of these young observers were not reliable for the appreciation of a difference of $\frac{1}{3}$ semitone, 8 were doubtful of $\frac{1}{3}$, 3 were generally correct at $\frac{1}{2}$, 5 were usually correct at $\frac{1}{4}$, and 1 boy of 15 years made no error in the paper of 15 tests, which contained three intervals of $\frac{1}{8}$ semitone and several of $\frac{1}{4}$. This boy had no experience in the use of any instrument, but had two years' choral training in the Southern Boys' Choir. His is an example of a naturally fine ear, for choral singing does not do much for the faculty to which these tests were applied. Among the good observers—viz., those who detected $\frac{1}{4}$ and $\frac{1}{2}$ semitone with tolerable accuracy—nearly all the grosser errors were in the observation of notes which had been flattened. Ears which detected $\frac{1}{4}$ semitone sharp with

much certainty sometimes mistook or failed to detect $\frac{1}{12}$ or even $\frac{1}{8}$ semitone flat.

The same set of tests were applied to 8 boys chosen by Mr. M'Nab as good ears from the membership of the Glasgow Southern Boys' Choir. Their ages were from 13 to 15 years, and their training had in each case extended to three years. Three of these boys detected all the sharps—viz., up to $\frac{1}{8}$ semitone. Their only errors were with flats, but these were sometimes with intervals of $\frac{1}{8}$ semitone. Another mistook one of the intervals of $\frac{1}{8}$ semitone, but had all other sharps correct. He had two errors of $\frac{1}{8}$ semitone flat. A fourth was pretty sure of intervals of $\frac{1}{2}$ semitone, and the remaining 4 made mistakes at coarser intervals, both sharps and flats.

A miscellaneous company was found in the class of Physiography at the Highlanders' Academy, Greenock. I mean miscellaneous so far as musical training and natural fineness of ear are concerned. Half of them were ladies, and the members varied in age from 13 or 14 to 22 years. The total number was 36. Sixteen were doubtful of intervals of $\frac{1}{8}$ or $\frac{1}{12}$ semitone; 5 failed at $\frac{1}{8}$, 5 at $\frac{1}{12}$, and the remaining 12 were generally correct at these intervals, but failed at $\frac{1}{24}$ and $\frac{1}{48}$ semitone. The same relative want of perception for differences in the pitch of flattened notes was noticed in all these observers. Professor M'Kendrick gave facilities for testing his class in the Physiology Class Room of the University of Glasgow. Forty-nine of these gentlemen, in two companies, subjected themselves to the tests. They may be taken as intelligent observers not generally musically trained. Of these 49, 25 so often mistook, or did not detect an interval of $\frac{1}{8}$ semitone that they could not be considered reliable for it. Eleven were generally correct at $\frac{1}{8}$ semitone but often incorrect at $\frac{1}{12}$; the remaining 13 sometimes detected intervals of $\frac{1}{2}$ and $\frac{1}{10}$ and sometimes not, but were usually correct with coarser intervals. Nearly all of these better observers were more correct with sharps than flats. I have had opportunities of testing the ears of 55 members of church choirs, choral unions, &c. Eighteen of these commonly made errors at $\frac{1}{8}$ semitone. Nineteen were generally correct at $\frac{1}{8}$, but often mistook or failed to detect $\frac{1}{12}$; 15 failed at $\frac{1}{2}$, but were usually correct at $\frac{1}{12}$; 2 were reliable at $\frac{1}{2}$ semitone sharp, but generally unreliable at $\frac{1}{4}$ and $\frac{1}{10}$ sharp, and these 2 sometimes mistook, or did not detect $\frac{1}{12}$ semitone flat. One was correct for all intervals of more than $\frac{1}{10}$ semitone. He had no pianoforte training, but played the instrument "from

ear." The general remark regarding the relative want of appreciation for flattened notes holds good for all these observers. Trained musicians—pianists, violinists, and tuners—are shy of an experiment of this kind, but a large enough number have submitted themselves to my tests to enable some inferences to be drawn. Generally speaking, there was no difficulty with intervals greater than $\frac{1}{8}\sigma$ or $\frac{1}{4}\sigma$ semitones. Two friends, one a good vocalist and pianist (see reference after), the other a professional organ-tuner and a violinist, were tested with the following intervals:—

$\frac{1}{8}$ semitone flat.	$\frac{1}{16}$ semitone flat.
$\frac{1}{8}$ " sharp.	$\frac{1}{16}$ " sharp.
$\frac{1}{4}$ " sharp.	$\frac{1}{8}\sigma$ " flat.
$\frac{1}{2}$ " flat.	$\frac{1}{8}\sigma$ " sharp.

These were given under each of the 3 octaves 512, 1024, and 2048 as near the C's as possible, but in a different order for each octave. The pianist erred in only 1 of the 24 tests, $\frac{1}{8}\sigma$ semitone sharp in the 512 octave. The tuner erred in 2 intervals of $\frac{1}{8}\sigma$ at the 512 C, 2 of $\frac{1}{16}$ at the 1024 C, and was doubtful of 1 interval of $\frac{1}{16}$ at the 2048 C.

Another similar set of tests were applied to two pianists and two violinists. They were generally correct for $\frac{1}{2}$, $\frac{1}{4}$, and $\frac{1}{8}$ semitones, but none gave intelligent replies to the tests of $\frac{1}{16}$ semitones. This last interval I have tried only at the 512 and 1024 octaves.

Amongst these trained observers the errors were perhaps still chiefly with the flattened intervals, but the difference between the keenness for sharps and flats was much less marked than in the case of untrained ears.

The tests described above as having been set to the pianist and tuner lead to the consideration of what is known as Weber's Law. This law claims to be a scientific expression of the relations between the changes in the intensity of stimuli and the consequent changes in the quantity of the resulting sensations. It is applicable, according to Weber, its author, and Fechner, its chief defender, to all the senses. With reference to the subject here discussed, it is thus formulated:*

"In the comparison of the heights of 2 tones it is a matter of no moment whether the tones are high or low, as long as they are not extremely high or extremely low. It does not depend on the number of vibrations which one tone has more than the other, but on the relation of the number of the vibrations causing the two tones which are compared."

* Wagner's *Dictionary of Physiology*, 1846, vol. ii, p. 560.

In other words, if we assume that the least observable difference in sensation may be regarded as a constant quantity, then for the production of this the addition of a much greater amount of stimulus is required for the higher than the lower parts of the scale. For example, if in any given case the least observable difference at 500 vibrations be half a vibration, then at 1000 vibrations the least observable difference will be represented by something more than half a vibration, but these two least observable differences will have the same relation to the pitch numbers at which they were heard. By this law, therefore, we should be able to fix a fraction of an octave or of a semitone, which is the least observable at all parts of the scale except the lowest and highest, and which is represented by an increasing vibration number as the pitch rises.

Dr. Preyer cannot accept Weber's Law as applicable to hearing. He finds that between 256 and 1024 the smallest interval heard is between '3 and '5 vibrations, '2 not being anywhere heard and '5 always heard. He thinks that from A^I (426 $\frac{2}{3}$) to C^{II} (512) a smaller vibration difference is recognised than at any other part of the scale, and that this part of the scale is therefore specially favourable for recognising small differences in pitch. He states that the recognisable difference in tone expressed in absolute vibration numbers is least in the neighbourhood of A^I and C^{II} and increases both upwards and downwards. The relative sense of difference increases with the pitch up to 1000, where $\frac{1}{2}$ vibration or $\frac{1}{2000}$ of a difference can be recognised. Dr. Preyer also found that below 128 vibrations keenness diminishes rapidly, and above 1024 very probably it decreases slowly, and appreciation becomes very dull above C^V (4224 vibrations). But he thinks a part of the scale may be found near Fis^{IV} (2844 $\frac{4}{5}$ vibrations), corresponding to A^I and C^{II} where the ear is very keen. He thinks keenness is less at C^{IV} (2048 vibrations) than at C^{III} (1024 vibrations). Such are the arguments urged by Dr. Preyer against Weber's Law as applied to hearing.

The results of my experiments, while they may not support the minute application of the law, favour its adoption as a general principle. They are somewhat at variance with those of Dr. Preyer.

From the first the tests were arranged to bring out the ability of the ear at the various octaves. The notes were always very near the C's, and in every set of tests 3 or 4 at least were the same for each octave. Ultimately tests were given to trained ears to elicit the facts regarding the law. In

respect of relative keenness untrained and slightly trained ears are as good at 256 and 2048 as at 512 and 1024 vibrations. It may be urged that observers who sometimes make errors at $\frac{1}{2}$ or $\frac{1}{4}$ semitones are not suitable for the experiment, for the results are not always the minimum observable differences. But again the conditions of the test are the same for each octave, and the results above stated are true of the great majority of the 200 observers I have examined. I can make out no special keenness for notes between A^I and C^{II}, and I believe that keenness does not appreciably diminish until the pitch is above C^{IV} (2048 vibrations).

A professional violinist and an organist were tested with the following intervals:—

$\frac{1}{10}$	semitone sharp.	$\frac{1}{10}$	semitone flat.
$\frac{1}{8}$	"	$\frac{1}{8}$	"
$\frac{1}{6}$	"	$\frac{1}{6}$	"

in a different order for 288 and 512 vibrations, and the results were slightly in favour of the lower octave.

The pianist referred to on page 224 was similarly tested with intervals up to $\frac{1}{10}$ semitone, and was quite correct in 8 tests at 288 vibrations, but made one error with the same interval at 512 vibrations. Several other violinists and pianists were tested similarly, and the results were generally to show that there was no greater relative keenness at 512 than at 256 vibrations. Below 256 vibrations I have been able to apply no tests, none of my pipes giving lower notes. In view of Dr. Preyer's suspicion that a zone of keenness might be found near Fis^{IV} (2844 $\frac{4}{5}$ vibrations), I had a pipe made which enabled me to apply tests from F^{IV} 2560 to G 3072 vibrations. I found keenness to be less here than at C^{IV} 2048, above which pitch I believe it rapidly diminishes.

Taking the scale from 256 to 2048 vibrations, I believe the best ears recognise with certainty $\frac{1}{10}$ semitone at every part. Under 256 and above 2048 keenness probably diminishes rapidly. This interval of $\frac{1}{10}$ semitone is equal at 256 vibrations to 2 vibrations, at 512 to 4 vibrations, at 1024 to 8 vibrations, and at 2048 to 16 vibrations. In individual instances special keenness for particular pitches may exist, but in many of these instances the nature of the musical training may explain this keenness.

My experiments tend to support Weber's Law in its application to the middle part of the musical scale.

APPRECIATION OF A SOUND OR NOTE OF GIVEN INTENSITY.

In the consulting room the usual tests applied to hearing are the watch, the tuning fork, and whispered speech. Perhaps the watch, for clinical purposes, is the most convenient test for aerial hearing, but it is of little value where accuracy is necessary, or where, for purposes of comparison, a sound of constant intensity is needed; for hardly any two watches have the same strength of tick. Two watches I have can be heard respectively at distances of 7 and 14 feet. The tick of a watch, therefore, is not accurate enough as a test. The tuning fork, too, used in the ordinary way, is only a rough test for hearing. In pathological states it is of much value. As a test for aerial hearing it has the same defect as the watch, with the additional one that the same fork gives sounds of different intensity according to the vigour of the exciting blow. Speech is an important test for hearing, because it is for the appreciation of spoken language that the faculty is chiefly used. But it is difficult to reduce to an absolute test, and it approximates an absolute test only when whispered speech is used.

According to Hartmann,* whispered speech is heard at a distance of 20 to 25 meters in a room as noiseless as possible.

Various forms of acoumeters have been constructed with the view of producing a constant test for hearing.

Politzer's † acoumeter is accurate and convenient. It consists of a small steel cylinder, on which a hammer of the same metal is made to fall through a definite distance. Both the cylinder and the hammer are supported on a vulcanite upright, the ends of which are made concave for the reception of the thumb and forefinger which hold the instrument. The distance through which the hammer falls is limited by its end nearest the hand coming in contact with a check which projects from the upright. The sound produced is like the tick of a very loud watch, and is said to be accurately tuned to C, which, however, can hardly be appreciated by any but a well-trained ear. The fall of the hammer gives a non-resonant metallic click. The instrument is made by Gottlieb, of Vienna. Hartmann found that many instruments made in Vienna were not uniform. With this instrument Politzer and Hartmann found that the average hearing distance was about 15 metres. Fechner found that in individuals of normal hearing the left

* *Diseases of the Ear.* Translated by Dr. James Erskine.

† *Lehrbuch der Ohrenheilkunde* (Stuttgart, 1878), p. 190.

ear was more acute than the right. My experiments with this instrument make me wish that it were improved in the direction of giving a sustained note, capable of being altered in pitch, and of a more definite pitch. Its click is too loud for testing normal hearing in a room of moderate size, and for the individual practitioner it has no great advantage over a watch he knows well. Hartmann, after the invention of the telephone, endeavoured to obtain an exact gradation of sound by means of electric currents. In the current he placed—1, a tuning fork, by which the current is interrupted at regular intervals; 2, a rheochord or a sliding induction apparatus, by means of which the intensity of the current could be varied and exactly regulated at will; and 3, a telephone at which is heard a tone corresponding to that of the vibrating tuning fork of more or less intensity according to the strength of the current. Although the hearing test can be made easily and rapidly by means of such an apparatus, it is, unfortunately, too complicated, and, as only a small number of tones can be produced, the apparatus has not yet been introduced into practice.

Schafhäutl* adopted as a test the minimum noise which could be heard in absolute stillness at midnight. He fixed the limit at the noise made by a cork ball weighing 1 milligramme falling from a height of 1 millimetre. Boltzmann and Töpler have reached results which Hensen considers to be as accurate as possible. By measuring the compression of the air at the end of an organ pipe of 181 vibrations per second they calculated that the ear responds with sensation to an amplitude in the vibrations of the molecules of the air not more than 0.00004 mm. at the ear. These calculations indicate that the motions in the cochlea must be astonishingly minute—far too minute to be observed even by the microscope.

NOTE OR TONE DEAFNESS.

When discussing the appreciation of small differences of pitch the influence of vocal and instrumental training in producing keenness of perception was apparent. But very good results were in some cases obtained where this kind of experience had not been great, and these afforded examples of naturally fine ears. But the opposite condition of obtuseness to differences in pitch is also a familiar one. Almost every musical person, and especially when singing in such a musically mixed

* *Physiological Psychology.* Prof. Geo. T. Ladd (London, 1887), pp. 372, 373.

society as a church congregation, is painfully aware now and then of the presence of some one who sings out of tune. Such people sing literally in such a monotonous way that one is forced to believe there must be something like tone or note deafness analogous to colour-blindness.

My observations with the instrument described on page 220 show that a large number of these tested were unable to distinguish the difference of pitch between two notes, one of which was $\frac{1}{4}$ or $\frac{1}{8}$, or even a $\frac{1}{2}$, of a semitone higher than the other. One observer told me that he required an interval of a whole semitone before any difference was apparent to him, and his replies to the tests given supported his statement. Mr. W. H. Cole informs me that he had at one time a pupil who after three months teaching was unable to distinguish the difference between C and D on the violin. Mr. Schofield, the organist of Camphill Church, has had a similar experience with a piano pupil. A very remarkable case of note deafness is recorded by Mr. Grant Allen.* The case is one of a gentleman of 30 years of age, well educated and capable of understanding and discussing psycho-physiological questions. This subject could not make out the difference between any two adjacent notes on the piano. He could make no distinction between C and F or A. From C to C¹ or A¹ he began to hear some difference in pitch; he therefore noticed the difference in pitch when the interval was extremely great, but not when it consisted of only a few notes. His power of appreciation was not the same for all octaves. In the middle octave he was able dimly to discriminate between notes having the interval of a third from each other, in the octave above the middle his best perception was a third, and a fifth, or a fourth, while at the highest and lowest octaves it needed a full seventh. His attempts at singing were failures: he sang "God Save the Queen" with hardly a single note correct. Discords had no unpleasantness for him, natural intervals like the octave no special features for him. His hearing was in other respects acute; he heard shrill and low notes well when tested. He recognised some tunes, but apparently by volume of sound and time alone. His father was quite unmusical, but not note-deaf; his mother was fond of music; his sisters were more or less musical, but one had her meatus congenitally closed by a membrane. The musical bias of the family was on the whole unpronounced.

But this remarkable person was not altogether devoid of appreciation of the character of musical sounds. He distinctly

* *Mind* (1878), p. 157.

appreciated the beauty of a single note, and liked the sound of a full rich tone such as that produced by the striking of a finger glass, and he was fond of church bells and chimes. He had a delicate ear for the metre of poetry. But he suffered great ennui when compelled to sit through a musical performance of two or three hours. On the other hand, when engaged in mental work he was not distracted by the performance of a brass band or a barrel-organ. Unless his attention was specially called to these, he was quite unconscious of their presence. He recognised what was lively, gay, tender, or majestic by the time and volume of sound, but could not recognise those minor changes of feeling which are exhibited within the limits of a uniform composition.

Mr. Allen thinks these cases are not uncommon, and Mr. Geo. T. Ladd * thinks persons insensible to differences of a tone and a tone and a half are not unfrequently met with. I have looked about a good deal for such cases, and have found none so extreme as that recorded by Mr. Allen, or even as those referred to by Mr. Ladd. Many of those who are said not to know one note from another rapidly improve under training. But such cases as that of the very unusual one recorded by Mr. Allen and that reported by Mr. Cole prove, I think, that a condition of tone or note deafness may exist.

In connection with this subject Dr. M'Kendrick † tested 10 such so-called non-musical persons—persons whom he describes as not knowing one melody from another, or who, on hearing the melody repeated, at last come to know it, yet lose it when the parts are added. He used the overtone apparatus of Appunn. He found that in all cases overtones were more or less perceived. He concludes as follows:—“The only difference I have noticed between musical persons and non-musical is that the musical hear tones of low intensity, such as the higher overtones, quickly and apparently without difficulty, whereas a person who is non-musical hears the lower overtones, but he cannot hear the upper at all, even with the aid of a resonator.”

This subject raises the whole question of the function of the cochlea—a question much too large and too difficult for discussion in this paper. But it may here be noticed that the perception of overtones with or without resonators and the liking for notes rich in overtones may be quite consistent with very marked tone deafness, for the first three overtones are

* *Physiological Psychology.*

† Note on the Perception of Musical Sounds,” by J. G. M'Kendrick, M.D. (*Proceed. Royal Soc., Edin.*, 1873-74).

separated from the prime and from each other by very large intervals, and it is not till we reach the 7th, 8th, and 9th partials that the intervals between them are as little as a whole tone. A person tone-deaf, therefore, to the extent of considering two adjacent notes alike may still have his ear affected by those partials of a compound tone which are more than a full tone apart.

SUMMARY.

I. Notes produced by 15 or 16 vibrations per second are the lowest which can be heard by the human ear. The difficulty of producing vibrations of sufficient amplitude to make such notes heard is great, but it is probable that sounds caused by a smaller number of vibrations are perceived as separate impulses and not as true musical sounds. Many ears cannot hear notes caused by less than 24 vibrations.

II. The most powerful very high notes are produced by very small tuning-forks, and by them a vibration number of over 40,000 has been heard by Dr. Preyer and a few other observers. Other and more convenient means for producing very high notes are Mr. Galton's whistle and the small open pipes described in this paper. These tests show that most ears can hear nothing when the vibration frequency is over 30,000 per second. Many are deaf to notes produced by more than 20,000, and some to notes of 15,000 vibrations; in a few cases deafness to notes of 5,200 or 5,500 vibrations has been recorded.

III. The least observable difference in pitch is for untrained or slightly trained ears difficult to state, but (exclusive of cases of tone-deafness) it may be put down as from $\frac{1}{12}$ to $\frac{1}{10}$ semitone. The ears of such trained musicians as violinists, tuners, and some pianists, can perceive with certainty a difference of $\frac{1}{11}$ to $\frac{1}{10}$ semitone. All observers, but especially the untrained, detect sharpened better than flattened intervals. Generally speaking, Weber's Law holds good for all but the highest and lowest parts of the musical scale.

IV. No quite satisfactory test has yet been found for the distance at which a sound of constant intensity can be heard. Politzer's Acoumeter is the best and most convenient test, and is heard by normal ears in almost perfect stillness at a distance of 15 or 16 meters.

V. Cases of tone or note-deafness (deafness to intervals of a whole tone or more) are very rare, but some well authenticated instances have been recorded.

CHOLERA AND ITS FOSTERING CONDITIONS WITHIN THE ENDEMIC AREA.*

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IN responding to the request of the Secretary to prepare a paper on cholera, as prevalent in Calcutta and its surrounding districts, I shall not enter into the controversies connected with Dr. Koch's comma bacillus; for, apart from the valuable researches of Dr. D. D. Cunningham, scientific enquiries on this subject are not carried on in India. The relative importance to be attached to the comma bacillus, or any other micro-organisms discovered in cholera or other diseases, must, as matters now stand, be determined in Europe and America by trained scientists working in well-equipped laboratories. Not that there is any lack of talent of the best kind for such investigations among the medical men of the Indian Army, nor any lack of material in India awaiting patient research. Diseases of man and beast are to be found in abundance. Leprosy, cholera, fevers, tetanus, diabetes, cerebro-spinal fever, glanders, anthrax, and cattle plague, are common enough; but organisation, laboratories, and apparatus are wanting. Before any real progress in scientific medicine can be accomplished in India, the scientific branch of the medical service must be distinct from the administrative; for administrative functions preponderating, relegate the scientific to such a position as to render it impossible to carry on to any advantage research requiring much labour, time, and thought. What is required is a central institute, well equipped, and having attached to it a body of men well trained in the chemical, physiological, and biological methods of the day, and who shall devote their whole time to teaching, and to the systematic pursuit of scientific research.

Into the natural history of the *materies morbi* of cholera it would, therefore, be useless to enter; but whatever doubts may be entertained as to the exact nature of the cholera virus, the fostering conditions which allow the disease to smoulder on during the cold weather, and which year after year, at certain seasons, are the chief agents in affecting its

* Read at the Annual Meeting of the British Medical Association, held at Glasgow, August, 1888, by J. Christie, M.D., Vice-President, Public Health Section.

rapid spread, are apparent enough, both in Calcutta and its neighbourhood. Calcutta, with a population of 450,000, is situated on the east bank of the Hooghly. It is connected by a bridge with the town of Howrah, which is situated on the western bank of the river, and contains about 100,000 inhabitants. Calcutta extends along the river side for about five or six miles, and is about a mile and a half in width. It is separated from its eastern suburbs by a ditch, made at one time to protect the community against the incursion of the Mahrattas; about two or three miles east of this ditch is a salt marsh.

Like other eastern towns on the deltas of great rivers, the natural drainage of Calcutta is away from the river towards the marsh. Accordingly the main line of drainage is now in this direction, the main sewers being so laid as to discharge their contents into an intercepting sewer parallel with the Mahratta ditch. The intercepting sewer terminates in a pumping station which, by means of a high level sewer, discharges the sewage, at some distance from the town, into an open canal which communicates with the salt water lake, which in turn is connected, by numerous creeks and khals, with the sea. The sewage is believed to find its way ultimately to the sea.

The east wind is fortunately not a prevalent one in Calcutta, but when it does blow for a few days in the hot season the atmosphere of the town is tainted with most offensive odours. The nearer to the lake the inhabitants dwell, the more prone are they to suffer from fever which is occasionally of a very malignant type, especially among Europeans and new-comers, though the general type of the fever appears not to be so severe as it was in the early part of the century.

It is recorded that in 1803 or 1804 the Marquis of Wellesley directed a vigilant watch to be kept at Balliaghata, on the edge of the marsh, for some French deserters who were supposed to have fled by water in that direction. A police special guard of 12 men was sent out and stationed there. After four days it was reported to the magistrate that all but three of them were dangerously ill; two were brought to Calcutta in the height of delirium with yellow bilious fever. The guard was relieved, and the following week all of the new guard were attacked by the fever. In less than two weeks, out of 24 men 6 died. During the past 50 years the drainage of this lake has at intervals of time been considered. The schemes, however, up till now have not taken practical shape. Some day, perhaps, a Company, such as the Aboukir Reclama-

tion Company in Egypt, will take in hand the drainage of the lake, and by its operations acquire a large extent of arable land, and rid Calcutta and its suburbs of the fever attributable to this marsh.

The town of Howrah shelves from the river in a westerly direction, and is bounded by rice fields and fresh water marshes. Fevers prevail towards the rice fields. The town has a system of surface drainage, being in this respect better off than the suburbs of Calcutta, which, excepting a few special localities, is undrained; it is also superior in its conservancy arrangements. The night soil in both districts is disposed of in trenches. The conversion into Poudrette would probably be a more advantageous and sanitary mode of disposal. Neither Howrah, with its 100,000 inhabitants, nor the suburbs of Calcutta, with its 250,000, have any public water supply other than the tanks which I shall describe later on. The Europeans, however, of whom there are a considerable number in Howrah (because of the construction of immense railway works, and a number of large mills), obtain their drinking water from Calcutta by water carriers. In fact, for miles round Calcutta very few of the better class Europeans will drink any other water than that brought from Calcutta. The same remark applies to many of the wealthier natives, but the community at large in Howrah and the suburbs have to obtain their water from pools. The insanitary condition of Howrah, without a public water supply, and without building regulations, is only surpassed by the suburbs, which have no public water supply, no drainage, no building regulations, nor any effective conservancy arrangements.

Seen from the river, Calcutta has a magnificent appearance. The fort, covering an area of three-quarters of a mile, occupies a prominent position, its eastern ramparts being close to and facing the river, while it has an extensive open park on its other three sides. The Government buildings north of the fort, the large mercantile houses in the European business quarter, the immense works and jetties all along the banks of the river carried out by the European Port Commissioners, the number of large ships from different parts of the world lying at anchorage in one of the noblest of rivers, impress one with a sense of the greatness of the city, and the vast amount of energy and money which has been spent in converting the English factory, founded by Mr. Job Charnoch, the Company's Agent to India, in 1690, into the present thriving metropolis of India. The same indomitable energy, carrying out the western ideas of space and grandeur, is to be seen in the style

in which the European residential and business portion of the town is laid out. To the south of the native town it is well built with wide and straight streets, with large houses and gardens attached; it has a fairly liberal supply of excellent water, is well drained and fairly well cleansed, and in sanitation compares very favourably with the better parts of London. But cleanliness, regularity of streets, and other ordinary health conditions, serve only to accentuate the worse, than medieval condition of a large portion of the native town. The contrast is almost inconceivable to those who have not seen it. With a few notable exceptions, northern and native Calcutta has narrow, irregular, and badly ventilated streets and lanes, which are often densely crowded with houses and huts built on irregular lines, and which, by reason of this irregularity, are badly and inefficiently drained. Only the better and middle class have a fair supply of water, the poorer class get a very scanty supply, and resort to the numerous polluted ponds in their midst, in which they bathe, wash their rice domestic utensils and clothes. The native town is studded with wells from which the inhabitants draw water. The atmosphere, in the most crowded districts, is extremely offensive, owing to stagnancy of air in the ill-ventilated streets, the foul condition of the drainage, and bad conservancy.

One of the most remarkable physical features in Calcutta, its suburbs, and the town of Howrah, is the number of ponds. The suburbs are studded with them, large and small, and so is Howrah, but to a less degree. Calcutta has over 300 tanks, and formerly had more than treble that number; but since Surgeon-General Payne's tenure of office in 1887, as Health Officer, great activity has been displayed in filling up these tanks. But, in depriving the inhabitants of the use of the water in the tanks, no compensating supply of pure water has been given, consequently the benefits to be obtained from this measure have been very considerably nullified. The inhabitants, in earlier times, dug tanks to obtain earth to form a foundation to raise their huts upon, to furnish mud for the walls of their huts, and to drain the land, the ponds supplying an easy method of disposal of their drainage. As the population increased, some of the largest and best tanks were set aside for the supply of drinking water, and it became a meritorious act on the part of any rich and devout Hindoo to construct a large tank for the use of his own family and his neighbours. The situation of Calcutta and its neighbourhood, within the tropics and on an alluvial soil, combined with its

nearness to the sea, its low and level surface, its heavy sub-tropical rains, and its peculiar physical features, including ponds, lakes, khals, rivers, &c., give to the atmosphere of the district a humidity singularly favourable to the luxuriant growth of vegetation, the development of insect life, and of the lower forms of organisms. Wherever the air is stagnant, it contains abundance of germ life. The personal habits of the people are cleanly and all that could be desired. As a religious duty, they bathe at least once a day. The women generally bathe much more frequently. At all times during the day men and women are to be seen bathing in the river Hooghly, or in the tanks near to their houses or huts. But while full of solicitude for the purification of their persons, they are not sensible of the defilement to which they subject the unchanged water of their tanks, which become defiled by the excretions of the bathers body, by the washing of dirty clothes, frequently of clothes soiled by the excretions of the sick ; at times, directly by human ordure, due to the practice of children and others defacating on the banks of the tanks, and nearly always by the sulliage and drainage from the surrounding huts and houses. Thus the water, except during the rainy season, varies in quality between the range of fairly good drinking water and that of concentrated sewage. The range is shown in the following analyses of samples ; the first analysis is of water from a protected tank in which no bathing, washing of clothes, or pollution by drainage, is permitted ; the next two are from tanks in the Native town ; the fourth is the water as supplied to Calcutta, taken from the Hooghly, twenty miles above the town, filtered there, and conveyed to Calcutta in iron pipes, and distributed to the different quarters of the town.

	Chlorine.	Ammonia.		
		Free.	Albu-minoid.	Total.
Maidan tank,	20	0.06	0.09	0.15
Two tanks in Native town, . . .	91	1.00	1.92	2.92
	318	32.00	35.08	67.08
Calcutta hydrant water, . . .	4.9	0.00	0.02	0.02

As an example of the condition of some of these tanks in one of the Calcutta bustees I give some notes taken at the time of my visit. The visit was made during the hot season,

when cholera is usually severely prevalent. "March 31st, 1888, water in tank quite low, would be lower in level if not fed by the drainage of a mill—colour, dirty green, consistence like pea-soup. Portions of crude disintegrated foecal matter floating on surface on north side; a thick greenish scum on the south side. Two cloths soiled with excreta lie soaking in the water; several deposits of human excreta on the sides of the tank near the water's edge; men and women bathing in the water. Other women are cleansing their household utensils in the tank, several are washing dirty linen while others are drawing water and taking it away in earthen vessels or chatties. While making these notes a girl comes direct from a privy, close by, enters the tank and quickly performs her ablutions.

"Second tank in same bustee has completely dried up. Some of the inhabitants who are erecting huts are digging mud from the bottom of the tank to use for the walls of their huts. The holes thus formed still contain some foul and offensive water which is being used for washing utensils, &c. Embedded in the mud of the tank are tin boxes, broken chatties, and refuse of all kinds. The tank has been dry for 10 or 12 days, and since that time has been used as a convenient place for drying cowdung cakes; heaps of cowdung have been collected on the bank for that purpose. It was also used as a receptacle for the refuse of the neighbouring huts. This was a bustee into which cholera had been introduced from another quarter of the town and had rapidly spread. As a general rule it may be stated that though the desire for personal cleanliness is universal, being insisted on as a religious duty, the anxiety for cleanly surroundings is an exception. The most odious sights around the dwelling are viewed with unconcern."

Now that the general physical features of the district have been described and those habits influencing the conditions of cleanliness of water, air, and soil have been noticed, the relations these bear to the prevalence of cholera may now be considered.

First of all, as regards the defilement of the tanks, the prevalence of cholera in any special district has long been looked upon as owing its chief cause to the polluted tanks, but in the suburbs, where so many tanks exist, the fact that cholera cases occurred near tanks was not very conclusive; for it would be difficult to find houses not near tanks; but Dr. Payne and Dr. Macleod showed that, for Calcutta at all events, wherever cholera was prevailing in huts near tanks, the emptying of the suspected tank, or the simple guarding of it, so that the water

was not used, was immediately followed by abatement, very often by complete cessation, of the disease. Instances also occasionally came under observation where a small district, whose inhabitants are accustomed to go to one tank, has been free for years from cholera, but which is suddenly affected with the disease; and inquiry elicits the fact that a patient suffering from cholera has been brought from some other locality to a hut on the borders of the tank, in which either the soiled clothes of the patient have been washed, or into which the drainage of the infected hut flows.

In one ward in Calcutta, containing nearly 25,000 inhabitants, out of 111 deaths from cholera inquired into, 66, or 59 per cent, were close to tanks. It has also been observed that bustees which used to be notable for being scarcely two successive years without many deaths from cholera have, since the tanks have been filled up, escaped to a very great extent. This is adverse to the view that the soil has a preponderating influence in the dissemination of cholera. In Calcutta, undoubtedly, there are localities in which cholera and fever prevail extensively together; there are, however, other localities in the town in which the inhabitants suffer from fever but in which cholera is rare. The two diseases may exist together in a locality, but that cholera is miasmatic in its general means of spread, is not supported by the evidence of its general behaviour in Calcutta. At the same time, it may be stated that, in the process of filling up tanks with refuse, and even after the filling up, on the setting in of the rains the tanks for the first year or two are apt to give forth offensive odours, and it has been noted that the inmates of the neighbouring houses suffer from choleraic symptoms. Lately a recently filled up tank had its refuse upturned to ascertain what amount of earth had been mixed with the refuse. During the examination, five of the members of a family living in a house on the windward side of the tank were attacked with vomiting and purging. In fact, the alluvial soil of Calcutta, *per se*, does not seem to be able to generate the cholera poison any more than tank water until specifically polluted.

The contrast between the sanitary condition of the European quarter and the native town, is not more striking than the contrast between the ratios of cholera prevalence in the two localities. During the two years that I have been in Calcutta, there has not been a single death among the European residents in the Park Street ward, which is the best kept ward in the town. During the two years there have been

several exacerbations or epidemics of cholera in Calcutta. The most intense was during October, November, and December of 1886. The weekly deaths from cholera being as follows:—

Week ending October	8,	34 deaths.	Week ending December	5,	107 deaths.
”	15,	98 ”	”	12,	94 ”
”	22,	63 ”	”	19,	63 ”
”	29,	73 ”	”	26,	49 ”
”	November 5,	54 ”	”	January 2,	31 ”
”	12,	67 ”			
”	19,	88 ”			
”	26,	117 ”			
				Total,	938 ”

Throughout the whole of this quarter cholera prevailed in Calcutta to an extent quite unexampled at that season of the year for at least 18 years past. Yet not a single European was affected, nor was a single native resident or servant in Park Street ward taken ill. At the commencement, between the 8th and 15th of October, four native servants died, but they were shown to have been infected elsewhere. It is at least a most remarkable fact that 5,000 persons should dwell in what has been termed the home of cholera, and should have cholera prevailing all round them (for the epidemic was as severe in the town of Howrah and the suburbs as it was in Calcutta), and yet that the 5,000 should escape. On the other hand, some of the native wards registered during the quarter a cholera death-rate of 10, 11, and 12 per 1,000 of the population. Europeans in Calcutta sometimes are affected, but in the few instances I have been able with any degree of success to follow out, it has been ascertained that either the cook's family had cholera, or that the milk drank was brought from an infected locality. In one instance in which cholera was introduced into a sisterhood, attacking two ladies out of four residents in the house, it was discovered that the cook's wife and children were ill with cholera, and that he was accustomed to go backwards and forwards several times a day between his home in the bustee where he nursed his family, and the sisterhood where he prepared the food for the four sisters. A curious outbreak in a large Roman Catholic Home may be mentioned. The young children of the Home occupied an upper storied room, which was apart from the main building containing the adult inmates. Six of the eleven children were suddenly affected with what appeared to be cholera. Three of them died. None of the adults or sisters were taken ill. There had been no cholera in or near the district for some time. The cows were kept on the premises. Here it was suspected that the gowala who had been dismissed and for-

bidden the premises, but who, notwithstanding, had been seen in the gowala shed some days before the outbreak, had done something to the milk or to the cows; for it was noticed at the same time as the outbreak happened among the children that all the young calves were suffering, and were so weak as to be hardly able to stand.

Occasionally isolated cases of sporadic cholera appear among Europeans and Eurasians; but careful enquiry usually shows that their cause is to be sought in some form of decomposed food which the patients have partaken of. Dr. M'Leod, whose experience of Calcutta extends over seventeen years, has frequently met with cases resembling cholera caused by the ingestion of sausages, fish, or meat in a putrid condition. These are cases of ptomaine poisoning, and are quite distinct from ordinary cholera. But not more remarkable than the immunity of the European quarter of the town, or the relative lower cholera death-rate which South Calcutta enjoys compared to North Calcutta, is the relative position that Calcutta as a city holds to Howrah and the suburbs as regards cholera prevalence. Subjoined is a tabular statement of the cholera death-rate in the town of Howrah, suburbs, and Calcutta, from 1871. There was no registration of deaths in Howrah in 1871 and 1872, nor in the suburbs for 1871.

YEARS.	TOWN OF HOWRAH.		SUBURBS.		CALCUTTA.	
	No. of Deaths.	Death-rate.	No. of Deaths.	Death-rate.	No. of Deaths.	Death-rate.
1871	...	...	...	...	796	1·8
1872	...	...	1,084	4·3	1,102	2·5
1873	458	5·0	1,768	7·0	1,105	2·5
1874	*759	8·3	2,038	8·1	1,245	2·8
1875	578	6·3	2,316	9·2	1,674	3·8
1876	512	5·6	2,316	9·2	1,851	4·2
1877	437	4·3	1,908	7·5	1,418	3·2
1878	615	6·7	2,363	9·3	1,338	3·0
1879	397	4·3	1,870	7·4	1,196	2·7
1880	218	2·3	980	3·5	905	1·8
1881	489	5·3	1,879	7·4	1,693	3·9
1882	668	7·3	2,349	9·3	2,240	5·1
1883	556	6·1	2,132	8·4	2,037	4·7
1884	*707	7·7	2,421	9·6	2,272	5·2
1885	372	4·0	1,877	7·4	1,603	3·7
1886	528	5·8	1,844	7·3	1,741	4·0
1887	273	3·0	2,090	8·3	1,198	2·7

High.

The difference will be observed to be considerable. In the several years there is, as in other epidemic diseases, a certain fluctuation; but the main facts shown by this table are that, for the period between 1870 and 1880, the suburbs had three times and Howrah twice the cholera death-rate of Calcutta, and this though Calcutta has nearly twice the population of the suburbs, and over four times that of Howrah; while between 1881 and 1886—especially during the years 1882, 1883, and 1884—there was a higher cholera prevalence in Calcutta, which was not shared in to a corresponding degree by the suburbs or the town of Howrah. This lessened the very favourable comparison which has just been drawn for the first period between Calcutta and the two districts which surround it; but notwithstanding this, Calcutta had, during the second period, only about half the cholera death-rate of the suburbs, and only two-thirds that of Howrah. In 1887 the suburbs had proportionally three times the number of deaths from cholera as compared with Calcutta.

A former Sanitary Commissioner for Bengal stated to me his opinion, based on a thorough knowledge of Bengal, that no other locality in the province presents such a terrible state of insanitation as the suburbs of Calcutta. It would, at all events, be difficult to conceive anything worse. The history of cholera in Calcutta is an instructive one. In 1870, works, which had been projected for several years previously, were completed; the drainage of the European portion of the town was laid down; and a splendid water supply was introduced. The practice of throwing night soil into the river ceased, and the garbage and refuse of the town were taken to the salt water lakes, and used for cultivating grass.

Coincidently with these sanitary improvements an unprecedented change took place in the degree of prevalence of cholera in Calcutta. Before 1870 the average number of cholera deaths was 4,000 per annum, varying considerably in different years. In some years there were 5,000 or 6,000 deaths; in other years the mortality dropped down to 2,000, according as the climatic conditions were favourable or the reverse. But in 1870 the numbers ran down to 1,558, and, as will be seen from the following table, remained below 2,000 a year for 12 years, varying from 1,850 to 800, instead of from 6,000 to 2,000:—

Year.	Cholera.		Year.	Cholera.		Year.	Cholera.		Year.	Cholera.	
	Deaths.	Ratio.		Deaths.	Ratio.		Deaths.	Ratio.		Deaths.	Ratio.
1866	6,826	15.7	1871	796	1.8	1876	1,851	4.2	1881	1,693	3.9
1867	2,270	5.2	1872	1,102	2.5	1877	1,418	3.2	1882	2,240	5.1
1868	4,186	9.6	1873	1,105	2.5	1878	1,338	3.0	1883	2,037	4.7
1869	3,582	8.2	1874	1,245	2.8	1879	1,186	2.7	1884	2,272	5.2
1870	1,558	3.5	1875	1,674	3.8	1880	805	1.8	1885	1,603	3.7
	18,422	8.5		5,922	2.7		6,598	3.0		9,845	4.5
1886	:	:	1887	:	:	1888	:	:	1,741	4.0	
	:	:		:	:		:	:	1,198	2.7	

Then a new era seems to have set in, for in 1882 the mortality rose above 2,000, continued so for three years, and remained high until last year, when the mortality fell to its former level. It is worthy of note here, that at the time of the rise of cholera in Calcutta, certain works, which were being constructed at the outfall sewer, prevented the sewers from being flushed, and there were general complaints of the stench arising from them; while the network of underground drainage of the northern portion of the town added its part to the pollution of the air. Perhaps a more important factor still was the great scarcity of water that characterised the districts where cholera prevailed most. Originally the filtered water was a constant supply when only supplying the stand-posts in the street, a few of the more important tanks and the house connections of the European community, and of some of the more wealthy natives. The demand, however, for house connections soon became so numerous as to gradually necessitate an intermittent system. Even in 1872 schemes were considered for a larger supply, but it was only in 1886 that partial relief was obtained. In the meantime unlimited waste and rapid increase of house connections had brought some parts of the town to such a pass that, even with more water being pumped from the river, certain localities were often without water, and the whole town suffered more or less. The present position is that the rich and middle classes get more water than they ever had, while the poor generally are worse off than when the supply was first introduced; and it is precisely amongst the latter class, and where the water is scantiest, that cholera now prevails. In an investigation made into more than 1,800 cholera cases, the proportion of

deaths in hut and brick-built houses was found to be over 3 to 1, though the population in hut and brick building is about the same in numbers. Only 6 per cent of the cholera cases occurred in houses provided with tap water, and these, for the most part, in localities exceptionally crowded, densely built over, and filthy.

The sudden change in 1870 in the cholera mortality, appears to have been peculiar to Calcutta, so far as general evidence can be relied on; but as mentioned previously, statistics for Howrah and the suburbs were not available before that date. The rise of the cholera death-rate in Calcutta, has been contemporaneous with scarcity of water, foul drainage, and inefficient conservancy. I give a description of one of the bustees, taken from a report of mine last year as being a good example of a nursery ground for cholera.

"Previous History of Cholera in Banomuly Sircar's Bustee."—From 1876 to 1880, there were 46 cholera deaths, or an average of 9 per annum.

"During 1881-1885, there were 114 cholera deaths, or an average of 22 per annum. In 1886 there were 15 deaths. The second period of five years was thus distinguished by an increase of 148 per cent, or nearly $2\frac{1}{2}$ times the mortality of the first period. This bustee has not a very large population, and there have been no great changes in either the class of population or numbers during the 11 years under consideration. It is apparent, however, that the inhabitants are more subject and prone to cholera within the last six years than formerly. In 1878 the bustee was to a certain extent improved, the owner having constructed a main road and several side roads through the more crowded parts. At the same time underground drains were laid down connected with gully pits situated at the side of the narrow road, also with other gully pits which are sometimes inside the confined compounds of the huts themselves. In addition to these changes, a water supply pipe was carried into the bustee in October, 1884, and a stand post erected in the main road near the centre of the bustee. Notwithstanding these improvements, cholera prevailed very severely. The deaths in the different years have been as follows:—

"FIRST PERIOD.								
" Years.	No. of Deaths.	
1876,	8
1877,	14
1878,	8
1879,	5
1880,	11

" SECOND PERIOD.							No. of Deaths.
" Years.	1881,	.	.	.	.	.
	1882,	.	.	.	.	.	27
	1883,	.	.	.	.	.	17
	1884,	.	.	.	.	.	34
	1885,	.	.	.	.	.	9
	1886,	.	.	.	.	.	15
" Total,							129"

For a year after the introduction of the drainage and other improvements there was a slight decrease in the cholera mortality, but in the following years that improvement changed into a deterioration worse than had existed before any alterations were made, until in 1884, when seasonal conditions were favourable to cholera, 34 deaths occurred in this small bustee, 27 of these in the first half of the year. In one quarter the cholera death-rate reached nearly 80 per 1,000 per annum of the population. After this outburst a water-pipe was laid down. In 1885 there were only 9 deaths, but in 1886 the mortality rose to 15, the greatest number occurring in the fourth quarter of the year. This latter outburst led me to inspect the locality. On entering the bustee the first thing that struck me was the foulness of the air—a most offensive sewer odour was experienced; the atmosphere was thoroughly impregnated with gases proceeding from the drains and gully pits. I had the underground drains opened and exposed to view for thorough examination. They were found to be choked with filth, emitting fetid, noisome, nauseating effluvia. Portions of the drains were completely blocked up, the contents escaping into the soil, polluting the subsoil and underground water, on which the numerous wells in the village depend for their supply of water for domestic purposes. In addition to this, the water which had been led into the bustee in 1884 could not be said to have been of any great advantage, for in consequence of want of pressure and scarcity in the locality, the supply was extremely scanty. With reference to the scanty supply of water, the following extract from my report for the fourth quarter of 1886 describes the water famine, not only in this bustee, but also in other localities:—

"I would particularly direct attention to this scarcity of water in the parts affected. Go almost where one may in the north part of the town, and especially in the riparian wards, there is the same complaint of want of water, and a very valid one it is. It is a common occurrence to see the people grouped round one of the stand posts waiting their turn to fill their

chatties ; many of them to be disappointed, for the water from the stand posts often comes in mere dribblets, and the supply is exhausted or turned off before half the people are supplied. In Coomartooly district, where cholera has been very severe, I have myself seen a small chattie which contains about two gallons take a quarter of an hour to fill. That the supply of water in these localities, or in particular parts of these localities, is a diminishing quantity, is evidenced by the fact that the taps used to be four and five feet above the ground ; gradually they have had to be lowered, until many people have had to sink wells in their premises, and receive the water from the tap at the same level as the pipe is laid in the ground. Scarcity of water brings in its train a great deal of sickness apart from cholera. The districts which have suffered most from scarcity of water have suffered also from a large amount of sickness, more particularly of a dysenteric character. The cholera appears to have been preceded by a period of dysenteric prevalence.

" This water famine, as I shall afterwards show, has apparently supervened gradually within the last few years. Previously, although hydrant water had not been carried into the bustee, there was water to be had in the streets adjoining. The Sanitary condition of the bustee was worse after the alterations than before. The bustee before 1879 was in a crowded and filthy state, with wells in nearly every hut, but with plenty of pure water on the outskirts of the bustee, which the inhabitants resorted to. A certain amount of cholera prevailed in the bustee, attributable to its insanitary condition and the use of polluted well water. Some narrow roads were afterwards constructed, which helped in a measure to ventilate the bustee and purify the air ; then the underground drainage was extended. This, after completion, is neither flushed nor cleaned, but left to take care of itself ; consequently, in a short time, the drainage becomes a seething cesspool of decomposing filth, which, escaping from the pipes, finds its way into the soil and the underground water, and creates a stinking atmosphere. About the same time the pressure of hydrant water becomes less, and gradually the plentiful supply formerly obtained from the neighbouring streets is unobtainable. Even though a pipe is placed in the bustee, the inhabitants are compelled to fetch most of their water from the river, and to use more and more the water from their polluted wells."

The remedies for the condition of affairs which I have described in this paper are simple enough, but they need time and cost much money. The first consideration is a liberal

water supply for Howrah and the suburbs and a more liberal supply for Calcutta. Few will drink polluted water if they can obtain pure water. By specially constructed tanks, even the habits of the people can be so directed as to permit them to enjoy to their hearts' content the luxury of the bath, and to perform their ablutions without danger. After this, well planned streets, allowing of free ventilation, with good building regulations, a system of drainage to pass through those streets; systematic clearing, levelling, paving, and filling up of ponds; draining, scavenging, removal of nuisances, and a well organised sanitary department will, I am persuaded, ultimately convert Calcutta, Howrah, and the suburbs, containing nearly 800,000 inhabitants, into as healthy a locality as any in the world, so far as the prevalence of diseases not due directly to a subtropical climate is concerned; and I am equally persuaded that those measures of sanitation will change one of the most important centres in the endemic area of cholera into an area no longer marked by endemicity.

CURRENT TOPICS.

THE ANNUAL MEETING OF THE BRITISH MEDICAL ASSOCIATION IN GLASGOW, AUGUST, 1888.—The Glasgow Meeting of the British Medical Association, after having been talked about, according to its President, for about twenty years, has at length become a thing of the past; and we think that the medical men of Glasgow have every reason to be satisfied with the result of their endeavours to ensure a successful gathering of the members of the Association in the Second City of the Empire. The various medical bodies and societies of the city, as well as individual gentlemen, worked together harmoniously and heartily to give their brethren from different parts of the country and from abroad a cordial welcome, and we feel sure that the strangers present at the annual meeting will be ready to admit that they were well satisfied with the provision made for their entertainment and instruction.

The General and Sectional Meetings of the Association were held in the University, and the interest taken in the strictly professional and scientific work of the gathering was sustained throughout. All the twelve sections were busily employed during the whole of the time allotted to them, and the labours

of the gentlemen who had been appointed to read the addresses were well rewarded by the enthusiastic and sympathetic audiences, who filled the Bute Hall, to hear them delivered. Principal Caird's eloquent sermon in the Cathedral, in which the argument against agnosticism and materialism was ably stated, formed a fitting prelude to the scientific work of the Association, and inculcated the true spirit of reverence in which all biological and physical research should be undertaken. The President's address, "On the Physician as a Naturalist," delivered on the evening of the same day in the Bute Hall, was marked throughout by that refined culture and profound scholarship for which our esteemed professor of the practice of physic is so justly famed. The address was in Dr. Gairdner's best style, and was characterised by an earnest desire to place before his hearers a vivid conception of the high ideal, both as regards the scientific study, and the general practice, of medicine, which the true physician must ever keep in view.

Dr. Clifford Allbutt, in delivering the address on Medicine, considered the necessity there existed for a comparative nosology, and, besides affording to the thoughtful physician in the course of his remarks abundant food for reflection, pointed out one, if not the chief, direction, in which the future advance of medicine is to be made. Sir George H. B. Macleod, in an exhaustive and scholarly address on Surgery, gave an interesting account of the progress which the science and art of surgery has made in the last fifty years—a subject which his long experience as an operating surgeon and study as a teacher have rendered him well qualified to handle.

Dr. William Macewen delivered an address on the "Surgery of the Brain and Spinal Cord," which, as has been truly said, by the *British Medical Journal*, "marks an epoch in surgery, the initial stage of a branch of our art obviously destined to a glorious and beneficent future." The address was delivered to a crowded audience, who followed the speaker with intense interest from beginning to end, and who on the motion of a vote of thanks awarded him a mead of applause which, it is not too much to say, amounted to an ovation. By a devotion to work and a love for the observation of nature, which remind us strongly of the genius of John Hunter, Dr. Macewen has won for himself a foremost place in the front rank of surgery; and the honour accruing to the Glasgow Surgical School by the ever memorable labours of Lister has been well maintained by the more recent researches of Macewen.

Professor M'Kendrick's address in Physiology "On the

"Gaseous Constituents of the Blood in Relation to Respiration," was delivered in Professor Sir William Thomson's Class Room, and forms a most important contribution to physiological literature. After an exhaustive historical account, the lecturer went on to consider the researches of later investigators, particularly dwelling upon and criticising those of Professor E. F. v. Marxow, of Vienna, who holds that the strokes of the heart "liberate the gases from a state of solution, and they become mixed with the fluid in a state of fine dispersion. This condition of fine dispersion is favourable for the elimination of the carbonic acid by the lungs, and for the using up of oxygen by the tissues." Professor M'Kendrick illustrated his lecture by performing a series of sixteen experiments.

One of the notable features of the Glasgow meeting of the Association was the extensive and varied character of the Annual Museum. The members of the Museum Committee were throughout untiring in their labours, the results of which were in every way most successful. The space occupied by the exhibits was probably larger than was ever before necessary during the 21 years that the Annual Museum has been in existence. By far the most numerous exhibits were those included in the section of Foods and Drugs, and these were displayed in the Examination Hall and in one of the large marquees erected in the west quadrangle of the University. The sections of Pathology, Anatomy, Physiology, and Books and Instruments were accommodated in the Zoological Laboratory, a hall well suited for this purpose from its large size and good light. The Sanitary Section of the Museum was accommodated along with the Foods and Drugs in one of the marquees. The Museum Catalogue, a volume extending to 208 pages 8vo, was presented to each of the members, and greatly aided them in looking through the specimens contained in the different sections. A great portion of the success of the Museum was undoubtedly due to the labours of Dr. R. S. Thomson, one of the Hon. General Secretaries and Secretary for the section of Foods and Drugs, and one of the most pleasing incidents of the meeting was the presentation of Zeimssen's *Cyclopaedia of Medicine* to Dr. Thomson by the exhibitors in this section, who thus sought to convey to him their appreciation and recognition of his valuable services. The only complaint we have heard in connection with the Museum was that the time was too short to allow of the exhibits being thoroughly examined, and many would have liked if the Museum could have been kept open for two or three days longer.

The members present at the Annual Meeting received an interesting memento of their visit to Glasgow in the handbook entitled *The Medical Institutions of Glasgow*, which had been compiled and edited, at the request of the Local Committee, by Dr. Jas. Christie, one of the Honorary General Secretaries. The volume is in every way worthy of the Glasgow School, and in addition to being an interesting memento, constitutes also a very important contribution to the medical history of St. Mungo's city, some of the articles contained in it being of considerable literary and historical merit.

In addition to the private hospitality which was largely and generously exercised, various entertainments for the members were provided by public bodies. The Principal and Professors of the University gave a *conversazione* in the Bute Hall, which was very largely attended and—in spite of some crowding, which could not very well have been avoided—thoroughly enjoyed by the members. The most enjoyable and successful of the social gatherings, however, was the *conversazione* given by the Lord Provost and Magistrates in the Picture Galleries and Grand Hall of the International Exhibition. The arrangements were in every way perfect, and the eyes and ears of the guests were charmed by works of art and good music. A magnificent display of fireworks in the Exhibition Grounds formed a suitable conclusion to the pleasures of the evening. The garden party of the Faculty of Physicians and Surgeons was also largely attended and enjoyed; and the annual dinner, which was held in the St. Andrew's Halls, was attended by about 500 gentlemen. The social clubs of the city generously threw open their doors to the members of the Association, so that every effort was made to provide for the comfort of the strangers during their stay in the city.

Unfortunately the weather on Saturday, the 11th August, was not all that could have been desired; but we are informed that, notwithstanding the inclemency of the elements, the members and their friends, who went to the different excursions, enjoyed them to the full.

The meeting will long be treasured up in the minds of many in Glasgow as one in which petty class and personal differences were forgotten in the effort to provide for the comfort and welfare of the guests, and as one in which there was less of that professional jealousy which unfortunately characterises so many of the Glasgow medical institutions and societies. Not the least pleasing of the many incidents which occurred, were the enthusiastic greetings of old friends, which

were heard every now and again ; and men, beginning to get grey in the hurry and worry of private practice, were vividly reminded of the pleasures of the long-gone student days, when old and respected teachers rose in their places to take part in the debates. For this reason, and for many others, we wish every success to the annual meetings of the British Medical Association.

REVIEWS.

A Manual of General Pathology, designed as an Introduction to the Practice of Medicine. By JOSEPH FRANK PAYNE, M.D. Oxon., F.R.C.P. London : Smith Elder & Co. 1888.

THE importance of a thorough training in Pathology and Pathological Anatomy is every year becoming more and more recognised in British Schools of Medicine, and no stronger proof of this can be adduced than the large number of valuable text-books on the subject, both systematic and practical, which have appeared in our language in the last decade. Fifteen or twenty years ago the student of pathology had to select his text-book from a very limited series, unless indeed he was able to read in German as in his mother tongue. Fortunately, however, this defect in our medical literature no longer exists, and the volume which forms the subject of the present notice is a valuable addition to the number of our pathological treatises.

Dr. Payne's volume differs considerably in plan from the usual text-book of pathology. It is a work on General Pathology, *i. e.*, a discussion of morbid action in general, its processes and causes, without any particular reference to the modifications of morbid action as met with in special organs and parts ; and is designed by the author as an introduction to the practice of medicine. The volume is divided into two parts : Part I deals with the processes of disease, and these are considered only in their general aspects ; Part II discusses the causes of disease. The introductory chapter is an effort to define disease and its causes, and the attempt has not been altogether satisfactory in our opinion. In a work on General Pathology a serious attempt should have been made to deal with the difficult problems involved in an endeavour to define disease. This has

not been done, and the analogy of a spinning top has been considered sufficient to illustrate and explain the obscure and subtle problems involved in the definition of disease. From this chapter the definition of disease would seem to be easy instead of difficult, and to be capable of epigrammatic statement. "It follows that the processes of disease are the same as the processes of life, *plus* an injury." Statements of this kind are attractive from their very incisiveness and apparent simplicity, but they are found, on a little reflection, to be manifestly insufficient, and to be quite incapable of covering the whole ground involved in the question at issue. Again we might object to the terms of the statement, and ask how can the processes of disease and those of life be the same if in the one case there is "*plus* an injury," and in the other not? Similar criticisms might be made on such sentences as the following:—"So that disease itself is not really anything foreign to the organism; though *causes* of disease may be, and are so." Such a statement is only partially true, for there is a sense, and a most important one, in which disease is very foreign to the organism. And further, one would be quite justified in hesitating a little before accepting the following, clear and incisive as it seems:—"Strictly speaking, diseases are natural processes so combined as to produce a course of action in the body which is not natural." The introductory chapter proves the difficulties of any attempt to define disease in general terms, in such a way at least as to cover the whole truth; and that the author has been well aware of this is abundantly proved by one of the first sentences of his book, where he states that "no one would willingly engage in the thankless task of definition, so specially exposed to criticism, and where success is impossible." We are not quite sure of the impossibility, of the difficulty we are certain.

It is impossible, in the space at our command, to discuss in detail the different chapters and sections of the volume. It is sufficient to say that, on the whole, the main truths and doctrines of pathology are clearly and ably stated; and in particular we would draw attention to the excellent chapter on Fever contained in Part I. Some of our recent works on pathology have omitted this important subject altogether. Dr. Payne discusses the phenomena of fever in a masterly manner, which cannot fail to aid the student in understanding one of the most difficult processes, with which he will have to deal. The section on the Causes of Disease is most important and interesting, and contains valuable information on the more recent researches in pathology, especially in

bacteriology. The student, in the pages of the book devoted to bacteria, will find a clear epitomé of all that is known of the action of micro-organisms on the tissues, and in the production of disease. In some respects the treatment of Part II, on the Causes of Disease, is not quite logical, inasmuch as the description of the causes has not been quite strictly separated from descriptions of special diseases and special morbid processes. Thus, in a thesis on the cause of disease, it is not necessary to describe the pathological anatomy of scarlet fever, or the appearances of the lung in phthisis pulmonalis, or the points of distinction between the tubercular and the typhoid ulcer of the intestine. Considerable condensation might have been effected, with great advantage to the student, had special pathology been kept out of the book altogether. We have no doubt, as we have said, that the volume will prove a valuable addition to our text-books on pathology, and we heartily wish it success.

Inebriety, its Etiology, Pathology, Treatment, and Jurisprudence. By NORMAN KERR, M.D., F.L.S. London: H. K. Lewis. 1888.

THE reproach has often been cast upon Great Britain (and through Great Britain on Christianity itself) that the most Christian nation of the world is also the most drunken, and that wherever our country's missionary and civilising efforts extend, there also in their train is to be found the vice of alcoholic intoxication leading to the moral deterioration, and in some cases certain extinction of native races. It is impossible to think of the past history of our land and not admit that this reproach is in great measure deserved; and at the present day, blue ribbon armies and temperance leagues notwithstanding, it seems to be as much deserved as ever. Our public houses do not seem to be diminishing in number, and the misery and poverty of our working classes, caused by alcoholic indulgence, seem to be as rampant as ever. But though this is so, the temperance cause would appear to be slowly advancing, and one cannot repress the hope that in the future the reproach on our beloved land will in some measure be lifted off. The temperance advocate is no longer regarded as a "philistine," and it is even admitted that he may possess all the honourable feeling and instincts of a gentleman.

This is a great advance in the attitude of the nation at large as regards the drink question, but a still greater advance and one laden with golden promise for the future is the fact that men trained in the scientific medicine of the day are beginning to study the drunkenness of England from a scientific point of view, both as regards its cause and treatment. As a sincere attempt to do this we welcome the appearance of Dr. Kerr's volume, and heartily recommend it to the members of the medical profession, and to temperance reformers especially. The volume is probably as much suited for the general as for the professional reader, and thus it is that we notice an absence of that strict accuracy of detail which is so essential in every scientific work. In our opinion Dr. Kerr does not insist with sufficient strength and precision of statement upon the distinctions to be drawn between those forms of inebriety which are truly to be regarded as diseases and those which are not. To tell us that a man drinks "from sheer 'cussedness'" is not to tell us much; and to tell us that others, who are not to be regarded as diseased, drink because they "yield easily to temptation," is to admit, in the non-diseased, the presence of something very like the "inherited or other cause" which is typical of the diseased inebriate. It seems, therefore, that a sharp line of distinction between the two is somewhat difficult to draw. Again, the *post-mortem* appearances produced by the excessive use of alcohol do not concern the question as to whether indulgence in alcohol is a disease or not. To demonstrate the effects of a poison (in this case alcohol) on the system is not to prove that the taking of the poison is necessarily to be regarded as a disease. Such *post-mortem* appearances, as Dr. Kerr has described, would be found equally in the diseased or non-diseased inebriate, provided only that he had taken enough of alcohol, and taken it for a long enough period. This, then, as an argument for the morbid or non-morbid nature of certain cases of drunkenness simply breaks down. That there is a form of alcoholic intoxication which is really and truly a disease, we perfectly admit, but we think that in his definition and distinguishing features of this variety of inebriety, Dr. Kerr has left himself open to criticism. We have no space further to pursue a critical examination of the volume, but we would cordially recommend to practitioners having to deal with cases of dipsomania a careful perusal of the chapters devoted to the treatment and jurisprudence of inebriety.

Doctors and Doctors: Some Curious Chapters in Medical History and Quackery. By GRAHAM EVERITT. London: Swan Sonnenschein, Lowrey & Co. 1888.

THIS book with equal accuracy might have been called "Quacks and Quacks;" and to denominate the heterogeneous, rambling, unconnected, and exceedingly gossipy statements and descriptions of this volume "Some Curious Chapters in Medical History," seems to us to be somewhat presumptuous. The amusement which the reader obtains in perusing the volume far outweighs the information which its pages are fitted to impart; in fact, it is a book for the drawing room or railway train, and not for the study. An outsider would not rise from the perusal of these pages with any very high idea of the medical profession, and would be rather apt to come to the conclusion that the boundary line between quackery and the practice of the healing art was, on the whole, rather difficult of demarcation. The reader is, on the whole, led to the conclusion that the regular members of the profession in bygone days had attempted rather to stem than to further the tide of medical progress; that the upholding of a pet theory or dogma, rendered venerable and infallible by the weight of accumulated authority, was, to them, on all occasions of greater importance far than human life and the relief of human suffering; and that the getting of fees was the *summum bonum* of professional existence. We do not say that this is anywhere definitely stated in the book, but this is the impression with which one rises from reading it. Whether such an impression is correct of medical practitioners as a class we do not at present pause to consider. Ambrose Pare's discovery of the simple method of treating wounds was, as our author points out, like many other great discoveries, the result of an accident, which "opened his eyes" and caused him "unmitigated astonishment." But surely there was here something more than the result of an accident. There was the master mind ever ready to receive new light from any source, and to lay hold of every indubitable fact the appreciation and application of which was likely to alleviate suffering; and there was the courageous soul ready to bear testimony in behalf of the truth in the face of opposition the most bitter, and in spite of the authority of all the ages. It would have pleased us better had our author referred a little to this aspect of the question rather than gone on to ask us to make

allowance for the gross ignorance of Paré and his *confrères* on the ground that they lived in the sixteenth and we in the nineteenth century. In keeping with this mode of dealing with his subject are the writer's remarks upon "the martyrs in the cause of science," who "had no sort of belief in the skill of their medical and surgical advisers," and who "resorted to them simply on the principle which urges the drowning man to clutch at a floating straw or a fragment of driftwood." Every earnest member of our profession will resent this kind of ratiocination, and we have no hesitation in pronouncing it sophistry of a very inferior order. Of course the author is welcome to his opinion that "a certain amount of professional humbug" may, however, be "more than excusable." Such an opinion is not ours. The relevancy of American Spiritualism to medical history is not very obvious; but, as we have remarked before, the volume is heterogeneous to a somewhat remarkable degree, and as a treatise on the history of medicine its value is practically *nil*.

A Movable Atlas, showing the Progress of Gestation by Means of Superposed Coloured Plates—Pregnancy at Full Term.
By Professor G. J. WITKOWSKI, M.D. Text translated, with the author's permission, by R. MILNE MURRAY, M.A., M.B., F.R.C.P. Ed. London: Baillière, Tindall & Cox.

THIS is a series of chromo-lithographic plates of pregnancy at full term, so arranged as, when lifted the one from above the other, to show the uterus in position, the placenta, membranes, and fetus. The drawing is fairly correct, and will give a student a good idea of the disposition of parts and their relation to each other, but further than this it can hardly go in the way of instruction.

As in the most of diagrams the vagina is represented as an open tube, and not with the anterior and posterior walls in contact as they exist in the living subject. There is a wrong reference. No. 26 is called the ovary, and No. 27 the Fallopian tube, the converse being the case.

This is Part XI of a Set of Plates in Human Anatomy and Physiology, and will doubtless serve to a considerable extent, the purpose in view.

ABSTRACTS FROM CURRENT MEDICAL LITERATURE.

MATERIA MEDICA AND THERAPEUTICS.

By DR. A. NAPIER.

Salicylate of Sodium in Polyuria.—A case of polyuria in which the administration of salicylate of sodium was followed by recovery is related by Dr. J. N. Randall, of Decatur, Illinois. On June 23, 1887, he saw a girl of 11 years, big for her age, but pale, flabby, and complaining much of cold hands and feet, who had been obliged for weeks to rise repeatedly during the night to void her urine, which was found to measure $9\frac{1}{4}$ pints in twenty-four hours and to contain no sugar. Valerian, ergot, and tannic acid were given in succession or combination, but they did no good. The thirst was difficult to appease, the quantity of urine was as great as before, and the child was weaker and further reduced in weight to 79 lbs. The patient was now given 8 grains of salicylate of sodium in aqueous solution after each meal. In ten days there was an appreciable amendment; she had more appetite, and felt stronger. The treatment from this time forward consisted of nothing else than the salicylate of sodium; no restriction being imposed upon the diet. The amount of urine diminished slowly and steadily, until, in November, the daily discharge was $2\frac{1}{4}$ pints. Her colour returned; there was no longer complaint of lassitude and of inability to breathe easily. The weight increased to 87 lbs., and recovery became complete.—(*Medical News*, April 7, 1888.)

Peroxide of Hydrogen locally in Diphtheria.—Dr. Hatfield strongly recommends a solution of peroxide of hydrogen in water or glycerine as a local remedy in diphtheria. He claims that it is one of the most efficient antiseptics known, and at the same time that it has neither escharotic, caustic, nor astringent properties. It neither stains, corrodes, nor injures sound tissues, differing in this respect from such well known agents as carbolic acid. It does not dissolve the membrane, but acts rather as a disinfectant. It may be applied with a brush, or used in the form of a spray, the solution being diluted with seven times its bulk of water.—(*Arch. of Pediatrics*, February, 1888.)

Oil of Turpentine as an Antiseptic Dressing.—Dr. R. B. S. Nargis, of Pensacola, Florida, has for many years applied the oil of turpentine in almost every case of external injury involving a solution of continuity of hard as well as of soft parts, with the effect of preventing suppuration and sepsis, and hastening the process of repair. For example, in recent injury to a hand or foot little short of necessitating amputation, after a thorough cleansing by free lavation with hot water and drying, the parts are properly adjusted and covered with pledges of lint or absorbent cotton saturated with the oil of turpentine; adhesive plaster is applied, and this is followed by a muslin roller bandage. A compound of two parts of oil of turpentine and one of linseed oil, thoroughly mixed, is now applied over the site of the wound, and reapplied at certain intervals so as to keep it constantly saturated. The wound will remain free from indications of putrefaction for an indefinite time. He has known this dressing, in the case of an amputated finger, to be retained nine days, and when removed emit no other odour than that of the turpentine and linseed oil, the cut surfaces having united by first intention.—(*Medical News*, March 3, 1888, p. 235.)

Iodoform in Tubercular Meningitis.—Dr. Daniel R. Brower, in a clinical lecture on tubercular meningitis, says that when the disease has once become established, the treatment that is regarded by those who have had the largest experience as the most scientific, as likely to give better results than

anything heretofore proposed, and as holding out the most encouragement, is the treatment by inunctions of iodoform and lanoline or vaseline—about one part of iodoform to five of the vehicle. An application of iodoform inunction is to be made at least twice daily to the scalp, the head being shaved for the purpose, and the scalp being covered with an impermeable cap. He has seen enough of this comparatively modern treatment to know its practical value. He has lately had a case under his observation recovering from its use, and he knows of two or three cases of the fatal form in which life was prolonged very much beyond the ordinary limit by its application. The impression now is, that if the iodoform treatment is used early in tubercular meningitis, the proportion of recoveries will be much larger.—(*Jour. of the Americ. Med. Association*, vol. x, p. 1.)

The Caffeine Value of Coffees.—MM. Cane and Y. Cowley have succeeded in determining the influence exercised by the process of roasting upon the proportion of caffeine contained in different kinds of coffee. Dry coffee contains from 1·1 to 1·18 per cent of caffeine. If the roasting is effected at a moderate heat, the loss is trifling; but if on the contrary it be carried to a high temperature, the quantity of caffeine does not amount to more than 0·36 per cent.—(*Boston Med. and Surg. Journal*, April 26, 1888.)

Salol in Diarrhoea.—Dr. O. T. Osborne writes favourably of the use of salol (salicylate of phenol) in a variety of diseases, especially in diarrhoea. Owing to its insolubility in the saliva, this new drug presents the great advantage of being tasteless. Nor does it irritate the stomach; it is not toxic, never (so far) having produced dangerous symptoms. The principal solution and absorption of salol take place in the duodenum, owing to the action of the pancreatic juice. The salicylic acid reaction in the urine may be obtained one hour after a 10-grain dose; and Dr. Osborne states that he has found the reaction present after a dose of only 1 grain, showing how readily the salol becomes broken up in the intestine. The indications, according to him, for salol in bowel troubles are vomiting, purging, cramps, and all so-called summer diarrhoeas; he has also found it successful in prolonged diarrhoeas and dysentery. The dose for a child under 2 is .05 grm. (.75 grains); from that age to 12 the dose may be gradually increased up to .2 grm. (3 grains); and after that .3 grm. (4½ grains) is usually a sufficient dose. During the acute stage a dose should be given every 2 hours until the stools cease.—(*New York Med. Jour.*, 7th April, 1888.)

The Elimination of Mercury.—M. F. Balzer and Mlle. A. Klumpke during the past year have made a long series of observations at the Lourcine Hospital, in Paris, on the amount and rapidity of the elimination of mercury by the urine during prolonged treatment. The condition of the mercury in the system, in whatever form it is administered, is, according to some authors, the bichloride held in solution by albumen or sodium chloride, or, perhaps more accurately, an albuminate of the oxide of mercury united with sodium chloride. Others again show some cause for thinking that metallic mercury in a state of extreme division is precipitated by haemoglobin, and circulates in the blood. The point cannot be considered settled. It accumulates in all tissues, but more especially in the liver and kidneys. It is eliminated almost entirely in the urine, but is also found in the saliva, sweat, faeces, and—which is an important point—the milk. There are many methods for the estimation of mercury in organic fluids. M. Balzer and Mlle. Klumpke have throughout adopted that of Witz, as modified by Souchow and Michaelowsky, which permits of the easy detection of a thousandth of a grain in an ounce. After a single dose of mercury its elimination is rapid, and seems complete in 24 hours. If a continuous treatment is interrupted, its excretion continues for some time after the interruption, and it has been found in the liver as much as a year after its administration has been stopped (Kussmaul, Gorup-Besanez). During a continuous treatment by equal daily quantities of

mercurial ointment, Michaelowsky found, from 1,500 analyses of the urine in 74 cases, that the amount eliminated gradually increased along with the length of time the treatment had been used, but became nearly constant after about a month. Souchow showed the same thing during a treatment by injections. After either treatment had been continued for some months and had then been stopped, slow elimination went on for from 6 to 9 months. It is sometimes desirable to hasten this final elimination, and potassium iodide has been thought to be of use. But this is at least doubtful, and hot air baths, producing much diaphoresis, have been found of more service. The amount of mercury that can be steadily eliminated for many weeks from the kidneys when the body is saturated is about a sixteenth of a grain (0.06 grammes). Less than half this quantity is excreted by the saliva, and the remainder, if there is any, passes with the intestinal excreta, and may give rise to diarrhea. The practical conclusion to be drawn from these minute researches is, that it is well to stop the administration of mercury when the amount eliminated by the urine has reached its normal maximum, for neither an abnormal polyuria can be counted upon to carry it off, nor is its passage by other channels likely to be innocuous. —(*Revue de Méd.*, April, 1888, pp. 303-327.)

Cocaine in Quinsy.—At a recent meeting of the Clinical Society of London, Dr. de Havilland Hall read notes of three cases of quinsy treated by cocaine. The following are the first two cases. A labourer, aged 28, was admitted into the Westminster Hospital on 28th September, 1887, suffering from quinsy. He had had two similar attacks in the last five years. He had been ill four days. The right tonsil and adjacent soft parts were enormously swollen, and he was unable to swallow without the greatest difficulty and pain. On the 30th there was complete inability to swallow. A 20 per cent solution of cocaine was painted freely over the whole of the fauces, whereupon the patient was able to swallow some bread and milk. The same night the left tonsil became affected, and the cocaine solution was applied again next day with an equally good effect; the day following he was able to swallow bread and butter. No suppuration occurred. The patient left the hospital quite well after being in one week instead of four and three weeks respectively, as on the two former occasions. In the second case a publican, aged 25, was found suffering from some dyspnea and great dysphagia. Both tonsils and the soft palate were greatly swollen, and were covered with a viscid secretion; there was no false membrane. Pulse 120, feeble. Urine, specific gravity 1030, loaded with albumen. The patient's condition was a most anxious one. The throat was swabbed out with a 20 per cent solution of cocaine, and the application was repeated in ten minutes. Five minutes later the patient was breathing more easily, and was able to swallow half a pint of egg, milk, and brandy. During the next two days applications of cocaine were made night and morning, and one on the third day. The patient gradually improved, no suppuration occurred, and a week later the urine was free from albumen, and he was well. With respect to the free applications of cocaine [*Practitioner*, vol. xl, p. 223], Dr. Hall mentioned that he always applied the solution now with a brush, all the cases in which untoward symptoms had showed themselves having been when he used the spray. He thought that cocaine was only of use in parenchymatous tonsillitis; the same good results had not followed its use in follicular tonsillitis.—(*Brit. Med. Jour.*, May 19, 1888.)

Abortive Treatment of Hay Fever.—Dr. Carl Genth, of Langen Schwalbach, makes a promising suggestion in connection with the therapeutics of hay fever. For the past ten years, a young medical man of his acquaintance has suffered so severely from hay fever, from the beginning of May to the end of June, that his practice has been seriously interfered with. He has tried all kinds of remedies without benefit. Quinine in large quantities alone produced favourable results, but not before symptoms of poisoning presented themselves, including urticaria on each side of the spine, following the course of the chief nerve-branches down the arms and legs, and finally covering the whole body.

In many cases of hay fever Dr. Genth found that the first symptom of the disease was acute conjunctivitis, and that the symptoms referable to the mucous membrane of the nose, asthma, &c., set in later. This premonitory symptom may precede the final outbreak by a fortnight, and perhaps disappear with a change of weather. Upon this observation he builds his therapeutic plan. Since the first phenomena of hay fever manifest themselves in the eye, it is probable that the cause of the hay fever first attacks the conjunctiva; that under favourable circumstances (heat) it multiplies there; and that it then diffuses itself over the mucous membrane of the respiratory organs, perhaps through the medium of the lachrymal canal. The condition must therefore be attacked by local treatment, directed to the eyes at the earliest possible date. Dr. Genth chose instillation and bathing of the conjunctiva with sublimate solution, of the strength of 1 in 3,000. The bathing began fourteen days before the appearance of the hay fever, whenever the patient returned home after open-air exercise. He was besides required to keep as cool as possible, and to wear pale blue spectacles. The result of the treatment was that he remained free from his trouble for a length of time. At the end of June slight irritation of the conjunctiva re-appeared, which, however, could not be compared in intensity with former attacks, and involved no complication. The bathing had not been performed with sufficient energy. Although the sublimate solution came in contact with the mucous membranes of the nose and throat but slightly, or perhaps not at all, neither of these organs was attacked, which must have happened if the virus of the hay fever passed into the body through the nose and mouth. In such an exceptional case, it would be simple enough to apply the solution by a nose douche, by garglings, or perhaps even by cautious inhalation.—(*Brit. Med. Journ.*, June 16, 1888.)

Iodoform in Haemoptysis.—The difficulty of finding any successful method of checking haemoptysis in tuberculous cases has led to the trial of many remedies. MM. Chauvin and Jorissenne, of Liège, publish a short account of the results of the administration of iodoform, at first along with tannin, afterwards by itself. In the first six cases pills were given containing iodoform $\frac{1}{2}$ gr. and tannin $1\frac{1}{2}$ gr. Sometimes the haemoptysis stopped after two of these had been taken; in one severe case of advanced phthisis as many as five were given *per diem* for three days before the bleeding ceased. In another patient, who had been in the habit of having eight or ten attacks of haemoptysis in the year, which had been treated by large amounts of ergotine and morphine, three of the iodoform and tannin pills stopped the haemoptysis four months ago, and there has been no recurrence since. In the three cases recorded in detail, in which the iodoform alone was used, the results were very similar. The authors came to the conclusion that gr. ij of iodoform *per diem* in three pills was an appropriate dose for moderately severe cases, and that more than eight or nine pills was not required in any case they had to deal with. This action they consider quicker than that of ergotine and therefore more useful. In all the cases during the past year in which they have given it there has been no relapse, and during the treatment no disturbance of digestion.—(*Progrès Méd.*, May 19, 1888, p. 387.).

Saccharine in Ammoniacal Urine.—At a meeting of the Royal Academy of Medicine in Ireland, the President, Dr. James Little, read a short paper on the use of saccharine in preventing ammoniacal change in urine. For the past three years, he said, he had seen from time to time a lady, nearly 80 years of age, who is quite confined to bed in consequence of chronic disease of the bladder, which gives rise to frequent and painful calls to pass water. The urine always threw down a copious purulent sediment, and, except when decomposition was prevented by treatment, was always ammoniacal. Phosphatic calculi had many times been passed, with great suffering, and no doubt many such exist in the bladder. Quinine and boric acid, when taken in fair doses, always purified the urine; but about three months ago her stomach became so irritable that these drugs could not be borne; nor could

washing out of the bladder by a weak warm sublimate solution be longer practised, as the passage of the catheter had become exquisitely painful. The consequence was that the urine became excessively offensive. In this difficulty it occurred to Dr. Little to try saccharine, and he ordered six tabloids daily. In three or four days the urine was no longer offensive. The patient has continued their use ever since, and the urine has not again become ammoniacal, though there is little, if any, diminution in the quantity of contained pus. Four other cases have been observed since. They were all males; one a case of catarrh of the bladder in a paraplegic gentleman; one a case of chronic cystitis, with enlarged prostate; and two cases of ammoniacal urine after stricture. In all the saccharine was distinctly useful, combined with the daily use of a catheter, so as to prevent the accumulation of residual urine in the bladder. Saccharine has no effect on the cystitis, except so far as the cystitis is kept up by the ammoniacal condition of the urine, and it is only in correcting that condition of the urine that it is of use.—(*Dublin Med. Jour.*, June, 1888, p. 493.)

Corrosive Sublimate Internally in Septicæmia.—Dr. C. W. Stevens uses corrosive sublimate internally in puerperal septicæmia. The initial dose is $\frac{1}{4}$ grain; if any looseness supervene, he diminishes it to $\frac{1}{8}$ grain. If there be a tendency to too frequent dejections, the bichloride can be guarded by an opiate. He has never met with sore mouth or other unfavourable symptom, except a slight relaxation of the bowels, which was relieved by diminishing the dose. In connection with its internal use, the bichloride may also be used as an injection. The cases of poisoning have been due to excessive doses. He has injected into the uterus 1:5000; into the vagina 1:3000. A simple and efficacious application is a napkin wrung out of lukewarm 1:2000 solution, and applied moist; it gives great comfort. In cases of mercurial idiosyncrasy it is better to use injections of liquor sode chlorinate or of potassii permanganas.—(*Journ. of American Med. Assoc.*, 15th May, 1888, p. 615.)

Seborrhœa Oleosa.—This form of seborrhœa is rather frequent in women, and when the face is affected, it imparts a shiny, greasy appearance, and is the cause of much annoyance and considerable disfigurement. Dr. Shoemaker treats it by absolutely interdicting all alcoholic stimulants, and recommends the following pills as efficacious in acting on the sebaceous glands:—

R.	Aloin,	.	.	.	.	.	.	.	gr. iiij
	Zinci oxidi,	.	.	.	.	.	.	.	gr. v
	Capsici	.	.	.	.	.	.	.	gr. x
	Extracti gentianæ,	.	.	.	.	.	.	.	gr. l. M.
Ft. pil,	xxv.								

S.—Take one four times a day.

He also gives this application:—

R.	Thymolis,	.	.	.	.	.	.	.	gr. ij
	Chloral hydratis,	.	.	.	.	.	.	.	gr. xx
	Acidi borici,	.	.	.	.	.	.	.	ij
	Hamamelis dest.,	.	.	.	.	.	.	.	3 j. M.

—(*Philadelphia Med. Times*, 15th June, 1888.)

Chloroform Water as a Germicide.—Professor Salkowski has recently investigated the action of chloroform upon organised ferments and upon some forms of bacilli. He found that all fermentative processes dependent upon the vitality of micro-organisms, such as the alcoholic, lactic, and bacterial putrid fermentations, were retarded by it; but it did not interfere with the action of non-organised ferments. Upon the comma bacillus chloroform water acts with extraordinary energy. Professor Salkowski considers that the preservative and disinfectant properties of chloroform water might

be much more freely utilised in the laboratory, and that it might take the place of glycerine in the preparations of pepsin, trypsin, invertin, and in anatomical preparations.—(*The Pharmaceutical Journ.*, 30th June, 1888, p. 1086.)

Oxalate of Cerium for Cough.—According to Dr. Hobart Cheesman, of New York, oxalate of cerium has proved a remedy for cough in every stage of phthisis, especially in the irritant cough of the earlier stages. He has often noticed a hoarse, deep, and harassing cough in the third stage lose its harsh character under the use of the oxalate, after which the cavities were emptied with less effort. The cough of laryngeal phthisis has been successfully treated with it; also other forms of laryngeal cough. In the vomiting of laryngeal and pulmonary phthisis it is beneficial. In chronic bronchitis it has been used with good results, as well as in spasmodic asthma, whooping-cough, and measles, and in cases of cough of obscure origin without assignable lesion. It has been recommended chiefly in chronic cough, but in acute bronchitis it often moderates the cough and lessens discomfort. Dr. Cheesman has never seen any dangerous symptom from the drug, although he has given twenty grains several times in one day. A sensation of dryness in the mouth and throat is the only symptom noticed by patients, and they cease to mind this after the drug has been taken a few days. Generally patients sleep and rest better while taking the oxalate; in a few instances moderate drowsiness has accompanied its use. Administering the drug dry seems the most satisfactory method. The effects are better when it is given on an empty stomach and in fairly large doses, rather than the same quantity distributed in smaller ones. The initial dose is five grains, to be given early in the morning, at bed-time, or both, with intervening doses as required. This dose may be increased, unless relief is obtained, to ten grains or more, several times a day. Large doses may succeed where smaller ones have no effect; or the cough, being for the time relieved by small doses, may return and be again moderated by increasing them. It may lose its effect with continued use—in some cases altogether.—(*N.Y. Medical Record*, 2nd June, 1888, p. 602.)

EPIDEMIOLOGY.

By A. K. CHALMERS, M.D.

Epidemic Jaundice (?)—Dr. Blair, of Shotts, sends the following notes of five cases of jaundice occurring at intervals in different members of one family:—

“ 1. On 31st May I saw M. C., *æt.* 8 years, and found her suffering from what I thought to be a recurrence of congestion of the liver with jaundice, for which I had treated her on two previous occasions. Next day the conjunctivæ were deeply bile-stained, as also was the urine, the faeces being of the colour of pipe-clay, and with a nasty *fœtor*. In a few days, after becoming exceedingly dark in colour, the skin and conjunctivæ began to pale, and bile returned to the stools, and by 11th June she was well. This was patient’s third attack, but beyond being rather more severe than the others, there was not otherwise much difference. There was no pyrexia after the first day, when the temperature was slightly raised.

“ 2. On 28th June, an elder sister, Annie, *æt.* 11 years, was found ill, and looking very much as her sister had done. Tongue foul, eyes heavy, and complained of headache. Had vomited once. There was no fever, but she became delirious that evening. After a few days she was jaundiced, but not so deeply as her sister, and in seven days was well.

“ 3. On 30th June, W. C., *æt.* $6\frac{1}{2}$ years, was taken ill with symptoms resembling those of his sisters, but very much milder. He, too, was slightly jaundiced, but only for a few days. Only kept his bed for two days.

"4. A., æt. 10 years, was next attacked. Mother states that, although 'considerably coloured' from jaundice, he only stayed part of a day in bed.

"5. John, æt. 13 years, was the last of the family affected. He felt very ill for a few days; had headache, and was stupid at his lessons, but was not confined to bed. In him the skin was only tinged, and the general symptoms were hardly noticeable, so that but for the illness of the others his attack might have escaped notice.

"These five cases extended over a period of seven weeks, and during that time I had no other case of jaundice under my care. The etiology seems obscure. The intervals between the cases excludes errors of diet and climatic conditions. The house is completely separated from all other dwellings. It is fairly well supplied with rain water, and from another source used by the other inhabitants. The situation is fairly well drained, but the house itself, though situated on high ground, is at a lower level on two sides than the main road, which at that part rises to go over a railway, on the level of which latter the house is built."

Scarlet Fever at Motherwell.—In June a limited outbreak of scarlet fever occurred. In all, about 80 cases were known—27 of these having only the throat affection, but occurring in such connection with the other clearly defined cases, that their character was unmistakable. All the cases occurred within ten days, something like a third of them being within the first three or four days. They arose in a collection of houses on the outskirts of the town, but there were also some scattered cases. The milk supply was from one farm, the cattle on which were examined by a veterinary surgeon. Two cows had incrustations on their teats; and the milk given by them was then used to feed a calf, but with negative results. I am indebted to Dr. Fotheringham for the facts.

MEDICINE AND PATHOLOGY.

BY DR. J. LINDSAY STEVEN.

"Domestic Poisoning" by Chromium Dyes.—Dr. Charles Harrison, of Boston (*Boston Medical and Surgical Journal*, 12th August, 1886), draws attention, apparently for the first time, to the possibility of serious poisonous effects arising in persons handling or wearing cloth stuffs dyed with chromium compound. Within recent years only, chromium compounds, especially the bichromate of potassium, have been extensively used as mordants, especially for woollen goods, "and the range of colours produced by the aid of the chrome mordants with the various dye-stuffs is very wide, including many shades of brown, brownish-red, claret-reds, olives, yellows, old golds, purples, blues, black, buffs, and greys." The "chrome disease" of workmen who have to make or handle bichromate of potassium is well known, "and it seems not unreasonable to suppose that, under favourable circumstances, equally severe symptoms might be brought about by the wearing of apparel in whose fibres compounds of chromium have been precipitated. And, further, it may be assumed that the accidental introduction of dust from the cloth into the stomach might well be followed by the characteristic symptoms produced by the ingestion of chromatis." Dr. Harrison gives cases which came under his own notice, summaries of which follow:—

Case 1.—A seamstress got some dark blue cloth to make boys' caps, and spent several days cutting it up. Soon she began to suffer from intense itching of the scalp and skin, first in the more exposed parts, afterwards nearly all over the body; intense thirst, soreness of the eyes, nose, and mouth, burning in the throat, and gastric discomfort followed. Soon after painful ulcers formed in various parts, especially about the fingers, where she pricked

the skin with her needle while sewing the caps. Some of the ulcers sloughed, and she lost three finger nails from this cause. Suspicious of arsenical poisoning, her medical attendant had the cloth examined, and it proved to contain, not arsenic, but chromium. Work on the cloth was stopped, and the main symptoms rapidly disappeared, though her general health continued poor for some time. About two years afterwards she sorted out and dusted the pieces of disused cloth, and suffered again from similar symptoms. At the time she was ill two of her children suffered from itching and burning of the scalp, apparently from using the same hair brush, as they lived at home, and her work with the cloth was done in a warehouse.

Case II.—A clergyman, wearing a new pair of brown woollen gloves, suffered from itching and irritation of the skin, rapidly followed by the formation of pimples, which became confluent and ulcerated deeply. The symptoms were confined to the parts of the skin covered by the gloves, and soon disappeared when they were laid aside. Chromium was detected in the gloves.

Cases III and IV, two children of a physician.—The symptoms here were general altogether, and began with nausea and gastric pain, followed by vomiting, headache and earache, prostration, quick pulse, and profuse cold perspiration, and soon afterwards fever, intense thirst, and pain and swelling of the lips, gums, tongue, and throat. The urine became scanty and slightly albuminous. The second night there was delirium, with convulsions, followed by deep stupor. There was no diarrhoea, and laxatives were administered at an early stage. On the 9th day, however, the boy who had suffered the more severely, had several bright bloody stools, which were preceded and followed for several days by stools containing much slime. Recovery in this case was very slow. There had previously been trouble in this family from stockings containing arsenical and antimonial dyes, so attention was directed to new suits of clothes, of brown woollen cloth, which had been worn by the boys for the four days previous to the beginning of their illness, and chromium was found present in abundance. Chromium was also detected in the stools produced by medicines early in the illness; the vomited matters were lost.

“Careful inquiry as to the means by which the dust could have been introduced into their systems developed the fact that one child constantly sucked his fingers, and that the other was in the habit of biting his nails.

“The history of the two last cases present a very remarkable similarity in symptoms to those of two children who were fatally poisoned by lead chromate, reported in Eulenberg’s *Vierteljahrsschrift für gerichtliche medicin*, and quoted in all the recent works on toxicology.

“Whether in these cases the compounds formed by the mordant and the dye stuffs are in themselves the active poison or are decomposed by the secretions of the body with liberation of simpler chrome compounds, cannot yet be definitely answered.”—D. M’P.

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THE
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ORIGINAL ARTICLES.

CLINICAL MEMORANDA

FROM THE OUT-PATIENT DEPARTMENT OF THE GLASGOW ROYAL INFIRMARY.

By JOHN LINDSAY STEVEN, M.D.,
Assistant Physician to the Hospital.

7. TWO CASES OF ABDOMINAL INTUMESCENCE IN CHILDREN,
PRESENTING FEATURES USUALLY REGARDED AS CHARACTERISTIC OF *TABES MESENTERICA*—RECOVERY IN ONE.

“THE diseases classified by the Registrar-General as *Tabes Mesenterica*” have been somewhat specially brought under the notice of the profession in Glasgow, by the recent publication of Professor Gairdner’s Lectures on the subject,* and the two cases which I now propose briefly to record seem to me to confirm in several important particulars the doctrines advanced by Dr. Gairdner. The cases have been selected from a series of 21 examples of abdominal disorder in children, which have been observed in the practice of the Royal Infirmary Dispensary during the last two years, and short histories of which I have preserved in my Dispensary Journals. One of the patients included in this series was 20 years of age, all the rest were under the age of 10; and in all of them

* *Lectures to Practitioners: on the Diseases Classified by the Registrar-General as Tabes Mesenterica.* By W. T. Gairdner, M.D. London: Longmans, Green & Co. 1888.

except one there was marked enlargement of the abdomen. I have all along experienced a difficulty in classifying the different cases of abdominal enlargement in children, which come under observation in out-patient practice in such large numbers ; and it was mainly on account of this difficulty that I began to keep records of the more characteristic abdominal cases in the children who presented themselves at the Dispensary for advice. The terms "consumption of the bowels," the "glands of the bowels," so frequently made use of by patients, and not infrequently by medical men, are, no doubt, quite insufficient and misleading, inasmuch as they are apt to be applied to all cases in which there are abdominal intumescence and a degree of hectic and wasting, notwithstanding the fact that the cases differ widely from one another in other particulars not less important. This happened to be somewhat forcibly impressed upon me a few days ago in the Dispensary, when a pale, emaciated child of about 5 years of age was brought in by his mother on account of a swollen abdomen. A senior student was sent to examine the case in the side-room, and he came back to report that he believed it to be an example of mesenteric gland disease, basing his opinion upon the presence of uniform enlargement of the abdomen, and on the fact that the child had a capricious, sometimes voracious, appetite, altogether overlooking the circumstance that the abdomen was soft, yielding, and clear to percussion all over, that there was no trace of hardness, resistance, or tumour in any part of it, and that, instead of pressure, even when very firm, causing pain, palpation, on the contrary, seemed rather to soothe the child, who was fractious and irritable, when the examination was commenced. In the course of enquiry into the history of the case, it was brought out that the child had been under treatment in one of the hospitals of the city, and that the mother, as the result of what had been told her there, believed that the child was labouring under "disease of the glands of the bowels." This information gave considerable satisfaction to the student, who was naturally pleased to hear his opinion backed up ; and yet, on a careful examination of all the facts, I could arrive at no other conclusion than that we were dealing with the large and swollen belly so often met with in children of the rickety diathesis. I mention this incident as it occurred, because it seems to me to be so far a confirmation of two important statements made by Dr. Gairdner *—viz., "Though *tabes mesenterica* is a very common name, and stands for a considerable figure in the Registrar-

* *Loc. cit.*, pp. 12 and 24.

General's returns, very few instances really occur of primary disease of the mesenteric glands." "In the former lecture, we arrived both on historical and on clinical grounds, at the conclusion that there is no sufficient basis, either in pathology or in nosology, for the name *tabes mesenterica* as applied either to one disease or to a group of diseases." I have selected the two following cases as the text of these remarks, because they seemed to me to present the main features of typical cases of *tabes mesenterica* (the *carreau* of French authors) as usually described; and, with regard to the first and fatal case, I noted at the time that it seemed to me to be the only pure case of tubercular mesenteric gland disease which had come under my observation. In fact, I think I am justified in regarding this case as having complied with the requirements of M. Guersent,* who writes as follows:—"The only pathognomonic symptom, the only positive character by which the *carreau* can be recognised, and this only in its last stage, is the discovery by palpation of the tubercles." The second case, though scarcely, perhaps, so typical, is quite legitimately, I think, to be included among those diseases to which the term *tabes mesenterica* has been commonly applied, but it also forcibly arrested my attention as being the first case, within my experience, in which a peritoneal tubercular affection resulted in an apparently perfect recovery, notwithstanding the great gravity of the symptoms during one part of the progress of the disease. This case, which was first under observation more than two years ago, and which was seen by me the other day in perfect health, impressed me very much at the time, and in connection with it, the following sentences from Dr. Gairdner are of great importance. "But I am, nevertheless, clearly of opinion that the precise observation and the just significance of these physical signs *in cases which are not fatal*, but which make, at all events a temporary, and in some cases a permanent, recovery, has not hitherto had sufficient attention bestowed on it; and one consequence of this has been, that in even the most justly esteemed monographs, as well as in most of your handbooks, the *prognosis* in these diseases inclines far too much to the grave and even hopeless aspect of them, and fails to recognise the existence of more or less similar cases which would tend to qualify that prognosis." "I shall, therefore, have no hesitation in assuming that *tabes mesenterica*, in every aspect of it, is susceptible of curative processes, the precise nature of which may be

* *Dictionnaire de Médecine* (1822), t. iv, art. "Carreau," quoted by Professor Gairdner, *loc. cit.*, p. 22.

admitted to be imperfectly known."* The pathological studies, in which during the past ten years I have been more or less continuously engaged, have firmly convinced me of the fact that too exclusive attention to the purely pathological aspect of a disease is apt to render the prognosis unduly grave, and that, as Dr. Gairdner insists, in the investigation of all diseases, in which pathological—morbid anatomical—knowledge is accurate and advanced, due importance must always be attached to the clinical side of the question, which should always be carefully taken into account in arriving at a prognosis.

(a) *Case presenting the characteristic features of tabes mesenterica in a child aged 5, and resulting in death after about three months' illness.*

Agnes W., aged 5 years, was admitted to the Dispensary on 20th December, 1887, on account of pain and swelling of the abdomen. *The family history* was utterly unknown, as the child was obtained from the parish by the woman who kept it, and brought it for advice. The guardian stated that, although it had been very "delicate" at the age of 2, during the last three years, until the present illness commenced, it had been fairly healthy. The illness began about nine weeks before the date of her admission with debility, loss of flesh, and inability to take her food. In three weeks from the onset of these symptoms the abdomen began to swell, and soon after this pain in the belly was complained of. During the last three weeks she has had to lie down for a short time each day, and has suffered from a frequent short cough without expectoration. The bowels have not been deranged until the last two days, when they became bound.

Physical Examination.—The girl was pale and emaciated, and very fractious. The expression was pinched and indicative of suffering; and the child kept continually asking for something to drink. The abdomen was uniformly enlarged, measuring 24 inches at a point 2 inches above the level of the umbilicus, and from the umbilicus to mid-Poupart on each side measured 5 inches. There was slight tenderness on pressure all over. Beneath the skin in the right iliac region, and a little above Poupart's ligament, there was a nodular swelling which was about the size of a hazel nut, and somewhat movable. On palpation above the umbilicus an obscure rounded mass extending transversely across the abdomen was made out; this mass was considered to be probably omental

* *Loc. cit.*, pp. 37 and 50.

in origin. In the left iliac region, on deep palpation, a smooth, hard, rounded swelling of the size of a small orange could be distinctly felt. The abdominal wall was exceedingly tense, and contrasted very strikingly with the emaciated condition of the rest of the body. In the dorsal decubitus percussion in the left lumbar and iliac regions, in the umbilical region, and in the hypogastrium was dull, but in the right lumbar and hypochondriac regions it was tympanitic, as was also the case over the stomach. Evidence of fluid within the peritoneal cavity was very doubtful, and no distinct fluctuation could be made out.

The apices of the lungs were examined, and found to be healthy.

The case was regarded as one of tubercular peritonitis, in which the mesenteric glands were probably very considerably enlarged, thus conforming to the usual accounts of *tubes mesenterica*.

A grave prognosis of the case was given to the guardian, and the following treatment was recommended—viz., light, nutritious, and largely fluid food—warm camphorated oil inunction over abdomen—flannel binder and undergarments—and the following mixture was prescribed for internal use:—

R.—Syrupi Ferri Iodidi.
Syrupi Ferri Phosphatis Co., aā. ʒii.

Sig.—A teaspoonful three times a day.

23rd February, 1888.—To-day the following post-card, in reply to a request that the patient might be brought again, was received from her guardian:—"I am sorry to have to inform you that Agnes W. died on the 14th January, and from my last visit to you she gradually became worse, and I was unable to take her back.—Mrs. W."

(b) *Case of tubercular peritonitis, with evidence of enlarged mesenteric glands, in a boy aged 9, and probably the result of a blow. Recovery after a severe illness of nine or ten months' duration.*

Joseph L., aged 9, was admitted to the Dispensary on 22nd June, 1886, on account of pain and swelling of the abdomen, with great emaciation and loss of appetite of six months' duration. The illness commenced in the month of January, 1886, with attacks of severe pain and great constipation, and about the same time the swelling of the belly was first observed. His bowels still remained costive, and through-

out the illness there had been more or less irritability of the bladder.

Family History.—The father is a strong, healthy man, but the mother has always been rather weakly, and looks it. Of a family of eight only two are alive, the patient aged 9, and another aged 5. Of the rest, three were still-born; one died at the age of 3 of "disease of the bones of both feet," with running sores; the second at the age of 2 years and 3 months, of "water in the head"; and the third at 5 months, of "bronchitis."

Examination.—The boy was pale and emaciated; the lungs were normal; the belly was much swollen and very tense, with limited areas of hardness and resistance at several spots—one especially noticeable being in the right lumbar region. These areas were very decidedly tender on pressure, and it was thought not unlikely that they might indicate enlarged mesenteric glands.

Treatment.—In addition to regulation of the diet and recommendation of rest, the following mixture was ordered:—

R.—Syrupi Ferri Iodidi.

Syrupi Ferri Phosph. Co., $\text{ææ. } \frac{3}{2} \text{ii. M.}$

Sig.— ss. three times a day.

The patient was also ordered to take small doses of cod liver oil.

5th August, 1886.—This child was seen again to-day, and the following additional notes of his case were made. Since the last visit he has been no better; and his mother informed us to-day that immediately before his illness began in January last he had received a violent kick on the right side of the abdomen from a boy, and that this was soon followed by the onset of the symptoms. For some days past the boy has been entirely confined to bed; and, although the abdomen is still much swollen, his mother is of opinion that it is somewhat softer than before. There is great tenderness on pressure all over the belly, particularly in the right lumbar region (in front of the kidney), where there is a distinct localised hardness, which is exceedingly painful when handled, causing him at once to begin to cry. The projection and swelling of the belly do not affect the hypogastric and iliac regions, but the enlargement constitutes a protuberant mass all above this, which is slightly pyriform in shape, the apex being at the umbilicus. There is a rickety curve on the right tibia and emaciation is very extreme.

7th September.—Patient's mother has called regularly for the medicine, but this is the first time that patient has been seen since the date of the last note. Within the last week or two considerable improvement has taken place. During this time the boy has not been entirely confined to bed, having been able to sit up more or less, and his mother states that not only is the abdomen much softer but the pain is almost entirely gone. The tender hard area described in last note is now almost painless, but the protuberance in the region of the umbilicus is still markedly present. One inch above the level of the umbilicus the circumference of the abdomen is $22\frac{1}{4}$ inches; at the level of the superior spinous processes of the ilia it is $19\frac{1}{4}$ inches. The whole belly is now soft and kneadable, and little, if any, tenderness is caused by manipulation. Treatment continued.

14th September.—The mother reports to-day that the child is still quite as well as at date of last note.

9th October.—The boy was seen again to-day, and found to be still improving in every regard. The treatment is continued.

19th November, 1887.—To-day, more than a year having elapsed since the patient was last seen, his mother called to consult about an illness of her own. She informed us that during the past 12 months the child has kept quite well, and is able to run about and play all day with his companions. His mother brought up the boy with her some time afterwards and he was found to be in good health.

12th September, 1888.—The patient was seen again to-day, and it was found that he had kept quite well and been able to attend school during the whole of the past year. The boy looks plump and well nourished, and has a tolerably good colour. His mother states, however, that he is not a great eater, and is rather liable to be troubled at times with a short dry cough. The bowels cause him no trouble, and he never complains of any pain in the belly. The circumference of the abdomen is $20\frac{1}{2}$ inches at the umbilicus and $21\frac{1}{2}$ inches two inches above this point. The percussion is tympanitic all over, and no hardness or resistance is felt in any part. The protuberance described as persisting in the note of 7th September, 1886, has entirely disappeared, as has also the hardness in the right lumbar region. The abdomen in fact is quite natural both in size and shape. A careful physical examination of the chest fails to detect any abnormality either in the lungs or heart.

This patient, therefore, remains healthy and strong more

than two years after recovery from the abdominal disorder which has just been described, and which, had the boy died, would almost certainly have been certified and registered tubercular peritonitis or *tabes mesenterica*.

8. THREE CASES OF SYPHILITIC HEADACHE.

(a) *Case of cerebral syphilis, with intense nocturnal headache, and considerable mental dulness and loss of memory—Rapid recovery under treatment.*

Robert M., aged 37, railway engine stoker and old soldier, was admitted to the Dispensary on the 1st August, 1888, complaining of severe pain in the head of three or four months' duration. The pain, which is very severe, begins in the forehead and extends round to the occiput; it is most severe at night, and keeps him from sleeping. The tongue is coated with a white fur; the bowels are costive, but the appetite is good, and he seems to be a well nourished man. He is married, and has one child aged 3 years, who is in good health.

Past History.—When in India he suffered from repeated attacks of ague. He suffered from gonorrhœa in 1879, and two or three years before this he contracted a hard chancre, which was followed by secondary symptoms, which confined him to hospital for 40 days. He has been married for five years, and his wife has had no miscarriages.

The patient appears to be very dull and stupid, and looks as if he did not wholly understand what is said to him, and as if he either could not, or was unwilling to answer the questions put to him. He states that his memory has become very defective since his illness commenced, and adds that he gets "quite absent-minded" at times, a statement which, having regard to his present physiognomy, one can very easily believe. On further questioning, it is elicited that he has had three seizures of an epileptiform nature since his head began to trouble him, the last of these having occurred about a month ago. The first of these seizures happened about three months ago, and came on quite suddenly when the patient had just come home from work. No paralytic phenomena of any kind could be detected, and on percussion of the skull tenderness was found to be most pronounced over the right side of the frontal bone.

The case was regarded as one of cerebral syphilis, and the following mixture was prescribed:—

R.—Hydrarygi Perchloridi,	gr. i.
Potassii Iodidi,	ʒ. iii.
Spt. Chloroformi,	ʒ. ss.
Inf. Gentianæ Co.,	ad ʒviii. M.

Sig.—Half an ounce to be taken three times a day.

6th August, 1888.—The patient has experienced very great improvement since beginning to take the medicine, and this statement is corroborated by his wife, who accompanies him to-day, and who says that the dull, vacant look on his face has disappeared, and that the pain in his head is greatly relieved. The perchloride of mercury in the mixture is increased to one grain and a half.

15th August.—The headache is reported to-day to be quite gone, and the chief trouble now is that he cannot sleep well at night. His "absent-mindedness" is in large measure gone, but it is noted to-day that he still has a somewhat vacant expression, and is very slow in conversation. In a few minutes he returned to the consulting room to say that he experienced a peculiar feeling of faintness, as if a fit were about to supervene. He is ordered to rest quietly for a time, and 30 grains of bromide of potassium are administered. In a short time he recovered and went home.

20th August.—To-day patient expresses himself as feeling quite well, and he is very anxious to get back to his work. He has had no return of the peculiar faintness experienced at last visit. The perchloride in the mixture is increased to two grains.

31st August.—He feels perfectly well. The headache has entirely gone, and has, in fact, caused him no trouble since shortly after the treatment was commenced. There has been no return whatever of the tendency to fits. For the past few days he has been back at his work as a stoker on the railway, and has felt quite able for his duties. The medicine is continued for another week, when he is to report again.

5th September.—Mercurial treatment stopped, and he is put upon a mixture of quinine and perchloride of iron, with sulphate of magnesia. He has been keeping quite well, and has been regularly at work.

14th September.—To-day patient is discharged as being quite well. There is no headache whatever; there has not been the slightest tendency to fits; he is eating well; and is quite able for all his duties. He looks quite intelligent, and his expression, manner, and speech are altogether different

from what they were at the time of his admission. To continue the tonic for a short time longer; and he is impressed with the necessity there is of immediately presenting himself on the first appearance of any tendency to relapse.

The symptoms in the case just related correspond very closely to those usually described in the books as typical of syphilitic disease of the brain and its membranes; so closely indeed, that, for the sake of comparison, I am tempted to quote the following sentences from Strümpell, whose text-book contains an excellent concise account of the disorder:—“The focal symptoms are often preceded for a certain length of time by general cerebral symptoms, such as persistent headache (worse at night), wakefulness, mental depression, and impairment of memory. . . . Then appear violent epileptiform convulsions. These often come on very suddenly, and may recur at considerable intervals or in quick succession. There are usually still other symptoms of cortical disturbance, especially paresis of one limb, or even of one-half of the body; very frequently slight disturbance of speech (stumbling over syllables) referable to the cortex, and indications of mental impairment. Many of these cases reach a fatal termination comparatively early.”* With the exception of the paresis, all the features in this clinical picture were present in my case. The patient's speech in the earlier period of the illness was slow and hesitating, but this was probably partly due to the mental dulness. There is another important observation, which has been made by Strümpell and many others, and which the present case serves to illustrate. “There are few severe and dangerous diseases where timely and appropriate treatment may be attended with the success achieved in many cases of cerebral syphilis; . . . the first essential of success is to begin treatment as early as possible. The sooner a correct diagnosis is reached, the sooner will existing symptoms be relieved, and further danger be averted.”† The correctness of the diagnosis in the case recorded was fully confirmed by the signal success of the treatment which was adopted.

“Cerebral syphilis is almost always a tertiary symptom. It is only in exceptional instances that cerebral symptoms are produced by the end of a year from the date of the initial lesion. Usually the interval is several years, and it may be ten, or even twenty.”‡ Here again the case just described

* *A Text-Book of Medicine for Students and Practitioners.* By Dr. Adolf Strümpell. American translation. London: H. K. Lewis. 1887. Page 717.

† *Loc. cit.*, p. 718.

‡ *Loc. cit.*, p. 715.

conforms to the general rule, inasmuch as an interval of ten or twelve years had elapsed before the supervention of cerebral symptoms. It is possible, however, though by no means conclusive, that the case I now propose very briefly to relate may be an exception to this rule. On the other hand, it is possible that we had to deal with one of these very rare cases in which secondary syphilis is ushered in with constitutional symptoms of very extreme severity. Mr. Arthur Cooper, in his article on syphilis, writes as follows: *—“The prodromata are usually mild in degree, but occasionally they are intense. Thus, headache, may be agonising, and in rare instances the amount of constitutional disturbance is so great that the onset of one of the specific fevers may be suspected.” It was thought possible that simple neuralgia might have accounted for the symptoms, but this I now think to be unlikely. But whatever be the real nature of the case, a brief statement of the facts may not prove uninteresting, chiefly for the sake of comparison with the example of cerebral syphilis just recorded:—

(b) *Case of syphilitic headache of extreme severity occurring in the early stages of the disease.*

Mrs. S., aged 29, was admitted to the Dispensary on the 16th August, 1888, complaining of severe headache, chiefly of the vertex and frontal regions, of three weeks' duration. A week ago the headache had become so severe that she was obliged to give up her work in a factory. The pain is much worse at night, and makes the patient quite stupid. On percussing the head great tenderness is developed over the parietal and frontal regions, and she is nervously afraid to let any percussion be attempted on account of the pain it occasions. She states that it is painful for her even to comb her hair.

The urine is of an amber colour, and somewhat opaque, but contains no albumen. The bowels are habitually costive, but the somewhat free use of purgatives in the present instance was quite ineffective in relieving the pain. The heart and lungs were found to be normal; the menstruation was quite regular; but her teeth were very bad (a circumstance which raised for a time the question of neuralgia in my mind). She had been under medical treatment, and various remedies, including painting of the forehead and neighbouring parts with what looked like blistering fluid, had been tried, but without any effect.

* *Quain's Dictionary of Medicine.* Art. “Syphilis,” p. 1577.

On careful questioning no direct evidence of syphilitic infection is at present forthcoming, but the patient states that her husband has been leading a somewhat irregular life, and left her for America about three months ago. Since his departure she had not been so well as before.

Notwithstanding the absence of any direct evidence of syphilis, I stated to the gentlemen present at the clinique my opinion that the headache was in all probability syphilitic, and the following mixture was accordingly prescribed:—

R.—Hydrargyri Perchloridi,	.	.	.	gr. i.
Potassii Iodidi,	.	.	.	3iii.
Potassii Bromidi,	.	.	.	3i.
Spt. Chloroformi,	.	.	.	3ss.
Inf. Gentianæ Co.,	.	.	.	ad 3viii. M.

Sig.—Half an ounce to be taken three times a day.

29th August, 1888.—The patient has been regularly taking the medicine, and to-day the following circumstances are noted. For nearly a week after the treatment was commenced the pain continued almost unbearable, so that she was forced to cut out her hair in order to try to get some relief. For some days, however, the headache has been entirely gone, and does not now trouble her at all. With regard to the question of syphilis, the following additional facts are discovered to-day:—On different parts of the body are a few rose-coloured papular spots, some of them about a quarter of an inch in diameter: there is a most profuse purulent discharge from the vagina; and on the edges of the vulva are one or two circular superficial sores. These manifestations made their appearance a short time after husband left for America. The case is still under observation, and the treatment previously prescribed is continued, with the addition of a lotion for the leucorrhœa.

(c) *Case of syphilitic hemicrania and deafness.*

I have still another case of syphilitic hemicrania, in which marked relief of the pain very rapidly followed the use of antisyphilitic remedies, and which occurred in the regular course of out-patient practice about 18 months ago. Unfortunately in this case my notes are very imperfect, a defect which cannot now be remedied, inasmuch as subsequent attempts to trace the patient have proved unavailing.

The patient, Mrs. B., was admitted to the Dispensary in the beginning of April, 1887, complaining of severe pain in the right side of the head, with deafness, of three months'

duration in all. The pain was always worst at night, and she had in a most typical form the dirty, earthy complexion so characteristic of the later stages of syphilis. She also suffered from an offensive discharge from the right nostril. A diagnosis of syphilitic hemicrania was made, and the patient was put upon a mixture of perchloride of mercury and iodide of potassium. In connection with the aural and nasal elements of the case, I sent her to my colleague, Dr. Johnstone Macfie, who wrote me as follows:—"There is great probability that the hemicrania and part at least of the deafness point to a specific lesion. She has, however, what I am not so sure is directly connected with it, a polypus in the right nostril. This accounts for the discharge."

On the 22nd April, 1887, patient reported herself as being greatly better in every way. For a day or two after beginning the medicine she had suffered from pains shooting through the head, but since then the headache had been entirely gone. The mixture was continued. My notes, as I have said, are imperfect, but I mention this case along with the other two, as an example of the relief in the course of a few days of severe headache, which had been more or less persistently present for three months.

9. CASE OF TYPICAL CHLOROSIS IN A GIRL AGED 14, WITH RAPID RECOVERY AND DISAPPEARANCE OF BLOOD MURMURS UNDER BLAUD'S PILLS.

Martha C., aged 14, a school-girl, was admitted to the Dispensary on the 1st August, 1888.

The case was entered in the journal as one of profound anaemia, in which the characteristic features of chlorosis were well marked. There was great pallor of the lips and tongue. A loud V.S. murmur was heard, chiefly in the pulmonary area, and the *bruit-de-diable* was most striking and distinct. There had been no swelling in the lower extremities; but she had been much troubled with acidity of the stomach, and had made complaints of pain in the right side of the abdomen. She had no cough; had never menstruated; signs of puberty were not more marked than usual; and the general nutrition of the body was well maintained. A physical examination showed that the lungs were normal, as was also the heart, except in so far as is noted above. The liver presented no abnormality.

Family History.—The father and mother had always been strong and healthy. There had been six of a family, of whom

two were dead; the others were strong, but the patient herself had never been very robust.

Treatment.—Blaud's pills, 3 to 6 in the 24 hours.

13th August, 1888.—Very great improvement. Colour coming back, and mucous membrane of lips much more natural looking. V.S. murmur cannot be heard, and the *bruit-de-diable* is much less distinct. The pills are continued.

20th August.—There is such marked improvement in this case in every way that the child is now regarded as quite well. The colour has completely returned; the gastric disturbances and pains are all gone, and she is taking her food well. The blood murmurs have *absolutely disappeared*. During the past week she has been taking 6 pills in 24 hours, for the two previous weeks 4 in the day. She is advised gradually to discontinue the medicine, after using it for a little longer.

17th September.—Since last note this patient has gone to work, and has been keeping quite well. Her colour is good, but her mother thinks she has been rather languid during last few days. Try another short course of the pills.

This case is chiefly interesting, from the comparatively early age (14, and before establishment of menstruation) at which a typical chlorosis developed itself, and from the very rapid manner in which the disorder yielded to the Blaud's pills.

10. THREE CASES OF PERIPHERAL PARALYSIS.

(a) *Case of profound paralysis of the upper arm, chiefly affecting the deltoid, with recovery under treatment in about six weeks.*

Mrs. M'I., aged 46, was admitted to the Dispensary on the 4th March, 1887, complaining of loss of power in the right arm of two weeks' duration.

The patient is a thin, wiry, ruddy complexioned woman of small stature, who states that she has worked in a pottery for about thirty years. Her work involves an excessive use of the right arm, and necessitates the immersion of the arms, especially the right, in cold water for a considerable time each day.

The loss of power in the arm was suddenly discovered on rising from bed one morning about a fortnight ago. The evening before she had an attack of cramp in the right arm and hand, which passed off after rubbing it vigorously for a short time, and she went to bed feeling all right, and discovered nothing wrong until the morning. She states that on several previous occasions she had suffered from attacks of cramp in

the right arm, accompanied by twisting of the hand outwards. She has all along been able to move the fingers and the hand.

On examining the patient it is found that she has completely lost the power of using the elbow and shoulder joints. All the movements of the forearm, however, seem to be perfect; she is able to flex and extend, and to pronate and supinate the hand; she can close the fist, and the grasp of the hand is fairly good. The action of the deltoid, biceps, and triceps is entirely gone; and the muscles themselves feel rather flaccid, but there is no appreciable diminution in the thickness of the arm. The muscles passing between the trunk and the shoulder are found to be all right, as by using the pectoralis major and the latissimus dorsi she is able to move the shoulder backwards and forwards. The patient made no complaint of any loss of sensation or numbness, but this point was not specially investigated.

Electrical Examination.—On testing the muscles of the paralysed arm with the constant current no response of any of the muscles is obtained with either pole of the battery, and with a strength of current gradually increased up to 30 cells. With the interrupted current, on the other hand, all the muscles of the forearm respond most vigorously, and the paralysed muscles also contract quite distinctly, although not quite so readily, to the same strength of current.

The patient is recommended to take 3 i doses of Easton's syrup three times a day, and to rub the arm daily with warm camphorated oil.

11th March, 1887.—To-day the condition of the patient's arm is found to be somewhat improved—*i. e.*, if the elbow be passively flexed, she can by a considerable effort keep it so for a short time, and altogether she seems to have more power of moving the arm as a whole. On testing again with the batteries the following results are obtained. The interrupted current produces a response in all the muscles of the arm, but this is most marked in those of the forearm. The constant current, with a strength of 15 cells, produces slight but quite distinct contractions in the deltoid, triceps, and biceps, but none in the forearm. With 20 cells contractions are obtained in all the muscles of the arm, but most of all in the paralysed muscles. The contractions of the affected muscles are most distinct when the contact is made with the positive pole, and may be expressed thus—ASZ>KSZ.

18th March.—Considerable improvement is still to be recorded. She has recovered to a slight degree the power

of the biceps, in that, if the forearm be passively flexed, she can let it down somewhat slowly.

25th March.—Marked improvement is noted to-day. She can now flex the elbow-joint perfectly in all positions, and can, by bending the head a little, touch the vertex with her hand. The backward and forward movements of the arm at the shoulder joint are now easily and vigorously performed. There is still, however, very complete paralysis of the deltoid, so that she can in no fashion raise the elbow from the side of the body, nor, if the arm be passively raised, can she for a moment maintain it in the raised position. In addition to the treatment already mentioned, she has, during the past two or three weeks, been having 10 to 15 cells of the constant current applied to the arm thrice weekly.

1st April.—She is now quite aware of a distinct improvement in muscular strength taking place every day. In addition to the movements noted above, she can now use the deltoid a little, especially when she aids its action by using the pectoralis major and latissimus dorsi. With a little difficulty she is now able to comb her hair.

15th April.—The power of the patient's arm has now quite returned, and she is able to move it freely and vigorously in all directions. She is advised to continue the treatment for some weeks longer.

19th September, 1888.—To-day, a year and a half after the date of the last note, patient reports herself as having been quite well, and as never having had the slightest return of the paralysis. She still sometimes takes cramps in the right hand and thumb, so that she has to ask her fellow-workwomen to rub her arm for a few minutes; but ever since the date of her recovery she has been able quite regularly to follow her somewhat laborious employment.

(b). *Two cases of Peroneal Paralysis.*

(1) John C., aged 50, a widower, was admitted to the Dispensary on the 6th July, 1886, complaining of an inability to flex the right foot (*i. e.*, to raise the toes from the ground with the heel fixed), with numbness extending from the dorsum of the foot to the middle of the leg in front, but not behind. He states that this set in suddenly a short time ago on a Sunday, the day after the sudden death of his wife, to the shock of which he attributes the attack. For two or three days after the commencement of his illness, in addition to the symptoms experienced in the foot, he observed a "feeling of pins and needles" in both his hands, but although this soon passed off,

the condition of the foot remained the same. On testing the sensation, it is thought that the degree of pain produced by pricking the dorsum of the foot and the front of the leg with a pin is somewhat deficient; and he states that the whole of this part of the leg feels as if it were dead. The numbness specially affects the two inner toes. After a hard day's work he feels pain in the front of the right leg above the ankle. He has never had rheumatism, and he noticed nothing peculiar in his condition the night preceding the attack, although he was awake the greater part of it. His general health is good.

The treatment recommended was massage daily, the constant current thrice weekly, and drachm doses of Easton's syrup thrice daily. After attending for a short time he disappeared.

30th September, 1886.—To-day patient presented himself, and stated that during the past two months he had been engaged as a waiter on board the *Iona*; he had been quite able for his work, and had only given it up at the end of the season. The loss of power in the foot had now quite disappeared, but he still suffered somewhat from numbness, although this was in the calf and sole, and not, as before, in the front of the leg. He was ordered to continue the Easton's syrup at intervals, and to go on with the massage.

(2) Daniel H., aged 44, a labourer, came under observation on the 24th August, 1888, complaining of loss of power in the muscles of the dorsum of the left foot and front of the left leg of about a year's duration. Pain, which is described as like a burning heat, extends from the dorsum to half way up the outer side of the leg, and in the whole of the same region numbness and pricking are experienced. In walking, the left foot "slaps down on the ground in spite of him"—a condition very evident to the observer—and he states that he has to lift the foot and drag it after him. With the heel on the floor he fails entirely to raise the sole from the ground, though employing manifest effort. The left calf measures 13½ inches, the right 14 inches. Ankle clonus is absent; and the patellar reflex is normal. On testing sensation of both feet and legs it is found to be fairly normal—light touches with the finger and with the pin-point being easily recognised and located. He states, however, that sometimes he cannot "feel" properly when the affected part is touched.

The disease began as a soreness or pain, which disappeared at times, in the left foot, and there has all along been a feeling as if his leg were being "jagged with pins." He blames expos-

ure to damp while working at a pump in a mine for bringing on his illness. One day while at this work, which was pretty heavy, he fell asleep during the short interval in which they were allowed to rest, with his left knee crossed over his right. On wakening he felt his leg stiff and sleeping, and from that time the trouble in the foot began and has continued.

He is a married man with ten of a family; there is no history of venereal disease; he has been temperate except on Saturdays, when he not infrequently got the worse of liquor.

The treatment recommended was as in the former case.

17th September, 1888.—The patient has been rubbing the leg with great regularity since last visit, but there is not the slightest improvement in his condition. He still entirely fails to raise the toes from the ground, or to elevate the outer edge of the foot by the action of the peronei muscles. The treatment is continued with the addition of electricity, which, however, can only be applied once a week.

Rather more than a year ago I recorded in this *Journal** a series of five cases of peripheral paralysis, chiefly of the musculo-spiral nerve, a form of peripheral paralysis which is of very common occurrence indeed, and which is so frequently caused by intoxicated persons sleeping on their arms that by many it has been called "Saturday night paralysis"—a better term would perhaps be "Sunday morning." The three cases at present recorded belong to the same class—viz., peripheral paralysis, but they are interesting as being examples of much rarer forms of the disorder. Since the five examples of musculo-spiral paralysis previously recorded, four additional cases have been observed, all of them attended by a certain amount of recovery, and all, except one, very obviously due to the same cause—"Saturday night." It is, however, more difficult to be sure of the true etiology of the cases now recorded, as in them the element of external pressure does not so clearly come into court. Among the causes of such symptoms as those present in the series of cases just given are mentioned traumatic lesions, compression of nerve branches by tumours, rheumatic influences, &c. In the third case there is an obscure history of pressure, but, with regard to all three cases we must, I think, in the absence either of traumatism or compression, look to some form of peripheral neuritis (perhaps in some of them of rheumatic origin) for an explanation of their pathology. "Primary neuritis, however," says Strümpell, "is of special interest. This may

* *Glasg. Med. Journ.*, No. 6, June, 1887, vol. xxvii, page 434.

either be caused by some evident agency, or it may develop, apparently spontaneously, without any cause as far as known. We have already learned to recognise one group of these primary neuritides in the preceding chapters—those which, in all probability, underlie most of the 'rheumatic' paralyses, on the one hand, and certain forms of neuralgia, like sciatica, intercostal neuralgia with zoster, &c., on the other." * The prognosis of cases such as those now recorded is, if treatment be undertaken early and persevered with, on the whole very favourable; and that recovery may be perfect and permanent is fully borne out by the case of Mrs. M'I., who was seen by me the other day in good health and strength, and quite able to follow regularly her somewhat laborious occupation in the pottery, notwithstanding the fact that it necessitates the preponderating use of the arm that had been so completely paralysed rather more than 18 months ago.

A CASE OF ANEURISM OF THE AORTA PERFORATING THE PULMONARY ARTERY.

By JOHN A. ANDERSON, M.B., C.M.,
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THE following case was under the care of Dr. Joseph Coats in the Western Infirmary. The clinical account of it is founded partly on notes made by Dr. Coats, and partly on observations on my own part. The *post-mortem* examination was made by me, and for its results I am to be held responsible.

It may be mentioned as a preliminary that the chief points of interest in the case that induce a publication of it are—1. The peculiar quality and distribution of the cardiac murmurs; 2. The conflicting elements in the clinical history rendering a diagnosis very uncertain; and 3. The interesting results of the *autopsy*, and the light which these throw on the obscure elements of the case.

J. G., *æt.* 33, a blacksmith, was admitted on 11th May, 1888, with the complaint of pain in the left side of his chest. His family history, so far as he knew it, was good; and as regards his own history, and having reference to the present illness, he had an attack of inflammation of the lungs thirteen years ago; he had been troubled with winter cough for the last three winters; he never had rheumatism in any form; there

* *Loc. cit.*, page 547.

were no evidences of his having had syphilis; but he had been very intemperate in the use of alcohol. He was not conscious of having strained himself at any time, though he was wont to perform feats of strength in the form of lifting weights, &c.

The history which he gave of his present illness was a very brief one. He had been perfectly able for his work until 11th April, or exactly a month prior to admission; though he admitted that during the last year he had been scarcely so strong as he used to be. On that date (11th April) the pain in the chest commenced; it became so severe in a few days as to prevent him from working—it was that which caused him to seek advice, and it was virtually the only symptom he complained of on admission. Dr. Dun, who saw the patient several times at the dispensary and took a great interest in the case, recognised the peculiarities of the cardiac condition, and in order to a closer observation, advised him to come into the house.

When examined in bed, we found the chest to present these signs:—1. A prolongation of the left border of cardiac dulness downwards and to the left, reaching slightly to the outside of the nipple line at its lower extremity; an extension of the upper border upwards, so as to correspond with the lower border of the second rib; and the right border in the mid-sternal line. 2. A marked pulsation and accompanying thrill in the third left intercostal space. 3. An exceedingly loud and long v.s. murmur of a blowing character, audible over the whole cardiac area—loudest in the pulmonic area, distinctly less loud at the apex, much less loud at the aortic cartilage, audible in least degree at the left sterno-clavicular articulation. (This murmur was distinctly heard also at the middle of the back on each side of the spinal column, but more distinctly on the left side). 4. A v.d. murmur in the pulmonic area, much less intense than the v.s. and somewhat toneless, scarcely heard outside the limits of the said area, and certainly rapidly becoming inaudible on passing towards the apex, contrasting markedly, therefore, with the intensity of the v.s. at the mitral area. 5. Distinct weakening of the respiratory murmur all over the right side of the chest. As regards the other physical signs it was noted that there was a slight inequality in the size of the pupils, the right being more dilated than the left. (This sign only lasted a few days.) The pulse was regular and moderately compressible, and the right and left radials were equal both as tested by the hand and graphically rendered by the sphygmograph. Breathing

was tranquil and there was no dyspnoea. Swallowing was easy, and on enquiry, we found that there never had been any haemoptysis.

The above condition was preserved almost unchanged, save for gradually increasing weakness, until the 5th of June, when slight breathlessness was complained of; and, on examination of the chest, a small area of dulness was discovered at the left base posteriorly, and in the same area abundant small moist rales. On the evening of the 9th June, patient had an attack of sickness and vomited a little bilious matter. Dyspnoea then became marked, and was accompanied with slight pallor and lividity of the countenance, and he had to be propped up in bed. There was a short dry cough but no expectoration. By the 11th of June, the dulness had extended up to at least one-third of the back on the left side, and, besides, was now detected at the extreme right base. There was also the slightest trace of oedema at the ankles, and jugular pulsation became obvious. By 27th June the dulness had involved two-thirds of the back, and evidences of fluid in the pleural cavity were present over the whole of the dull area. The dulness on the right side remained unchanged. From 15th to 24th June, the dyspnoea, which had not lessened since its onset, became urgent, and was associated with a sense of smothering, present only in the night time during the first three days of this period, afterwards present both day and night. Sleep gave way to pervigilium. On 25th June the dyspnoea had lessened, and the general condition had somewhat improved, for the pain in chest had gone, but oedema had extended up to the thighs, and the calves of the legs and inner aspects of the thighs had become painful. Pulse, for the first time, clearly became of the water-hammer type. Slight icteric tinting appeared on 27th June, increased up till 7th July, and then gradually lessened till the end. On 30th June vomiting and pain in the chest returned, the former, however, lasting for only two days, the latter persisting in great severity until death. Oedema now became general. There was no great difficulty in breathing, however, and lividity was slight, but frequent blanchings with coldness of the surface were observed. Pulse lost the water-hammer character, and became fuller and less easily compressed. Aggravation of the pain, amounting to agony, continued until 12th July, when death occurred from syncope.

The temperature was normal throughout. The urine was always, but specially in the last four weeks, scanty, the

average in said period being 18 ounces. It frequently contained urates, but never albumen.

The treatment consisted in the administration of cardiac tonics, digitalis and convallaria majalis, and of diuretics. Amyl-nitrite was tried repeatedly, but failed. Alcoholic stimulants seemed beneficial at the outset of the case, but were absolutely refused in its progress because of the great discomfort produced. Southey's tubes were tried, when oedema became urgent, but failed to arrest the downward tendency of the disease.

The *autopsy* was made on the following day, and subjoined are the more important results.

The heart was slightly enlarged, and weighed 14 ounces; all its cavities and the valvular orifices were dilated. The mitral orifice admitted four fingers, the tricuspid five. The aortic curtains were competent, and there was no thickening of them; the pulmonic were incompetent. Above the right posterior sinus of Valsalva of the aorta was an aneurismal cavity, the size of a large walnut. The sinus of Valsalva formed, as it were, a preliminary cavity at its threshold, and on a lower level. The orifice opening into the aorta was nearly circular, measuring 10 lines transversely and 13 vertically, and over its thick rim, its lining membrane seemed continuous with the intima of the aorta. The floor of the sac rested on the auriculo-ventricular groove. The greater limit of the sac was formed by the posterior lateral walls of the pulmonary artery; and there could have been little to strengthen this from the coats of the aorta, for the whole wall was thinner than what that of the pulmonary artery itself should have been, and especially so at the part which bulged most into the pulmonary artery. The inner wall of the sac was puckered, and there was no appearance of stratified clot in it.

As viewed from the side of the pulmonary artery, two orifices of communication between the sac and pulmonary artery, which were difficult to see from the aortic side, now became very apparent. Each orifice was nearly circular, was $\frac{1}{4}$ inch in diameter, and had bevelled edges. No distinction could be drawn between them as regards age. The one opened into the left anterior (pulmonic) sinus of Valsalva; the other was just below the crescentic border of the corresponding curtain. Part of the right half of this curtain had become adherent to the opposed wall of the pulmonary artery, so as to interfere with the integrity of the sinus of Valsalva, and to produce a loose fold in the floor of the sinus. When this fold was obliterated by the pressure of the finger from the aortic

side of the aneurism, the orifice mentioned as opening into the sinus was thrown free—above the level of the straight border of the curtain.

Again, on examining the aortic wall, there were abundant evidences of endarteritis. These consisted in the presence of atheromatous deposit and ulceration. The wall was puckered in two places, evidently from cicatrisation after atheromatous ulcers; but above the left posterior curtain, an oval ulcer, six lines in length and three in depth, had formed, and was actively advancing to perforation, which it had nearly attained.

Other important items were—1. Very extensive, almost complete, adhesion of the right lung to the chest wall and to the diaphragm, and the presence of 4 ounces of fluid in such parts of its pleural cavity as had escaped obliteration. 2. Adhesion of the left lung at its base to the diaphragm and to the chest wall, and the presence of 24 ounces of fluid in its pleural cavity. 3. Some oedema of the lungs. 4. Also some emphysema of them, especially at their anterior margins.

It will now be proper to comment briefly on the facts of the case as revealed by the *post-mortem* examination.

Drs. Gairdner and Coats were of opinion, during the life of the patient, that there was essentially one murmur, and that a v.s. mitral one, indicating regurgitation through the mitral orifice and that the v.D. was an echo of the v.s. (assuming the v.s. to be produced in a cavity). It is extremely probable that there was, at least in the later stages of the case, a murmur from regurgitation, not only at the mitral orifice, but at the tricuspid as well; but this was simply a reinforcement, and the essential cause of the v.s. murmur seems to have been the presence of the aneurism. When perforation into the pulmonary artery occurred, the direct escape of blood from the aneurism into the pulmonary artery (the left ventricle being naturally stronger than the right) would certainly at least supplement its intensity. Moreover, the more or less hollow quality attaching to this murmur, during the whole time the case was under observation, is evidence in favour of regarding the presence of the aneurism as its cause. As regards the v.D. murmur, that may have been an echo of the v.s., as Dr. Gairdner and Dr. Coats believed; but for some time before death at all events, and almost certainly contemporaneously with perforation, if not before it, there was true pulmonic regurgitation from obliteration of a part of a sinus of Valsalva in the way before mentioned.

Secondly, as to the possibility of having diagnosed the

condition of aneurism during life, there was not adequate proof to do so with certainty. The weakening of the R.M. on the right side, the observation of inequality of the pupils, the slight extension of cardiac dulness upwards, the man's age, history, and occupation, were all, no doubt, more or less in favour of such a diagnosis; but, on the other hand, the value of the weakening of the R.M. on the right side was detracted from by the fact that there had been an inflammatory disease in the chest in a previous part of his history, and the distribution of dulness at the bases of the chest, as the case advanced, added weight to this interpretation; and further, the phenomenon of inequality of the pupils was a transient one; and finally, it was hard to believe, e.g., that an aneurism, supposing it to be in the position necessary to produce weakening of the R.M. over the whole of the right side, would not produce other evidences as striking. But, nevertheless, too much importance was not paid to individual symptoms, and the frequency with which aneurism in the chest baffles detection was not forgotten.

As to the time at which rupture may be supposed to have occurred, one can hardly suppose that the bevelled condition of the orifices of communication could have been attained in less than ten days before death. The clinical history, as above detailed, renders it possible to ascribe a rupture to 9th June, and a rupture to 30th June. The clearly sudden aggravation of his condition at these times renders the dates probable.

In conclusion, and in connection with this case, it may be mentioned that there are, in the Pathological Museum of the Infirmary, two specimens of aneurism perforating the pulmonary artery (Nos. 57 and 58), which bear considerable resemblance to the one here discussed.

ZULU WITCH DOCTORS AND EXPERIENCES AMONGST THE ZULUS.

By S. G. CAMPBELL, M.D.

(*Read before the Medico-Chirurgical Society of Glasgow,
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MR. PRESIDENT AND GENTLEMEN,—I owe an apology to the Society for venturing to bring before its members a subject which will prove of so little scientific interest; though a paper, which may possibly be described as more or less recreative in

character, may not be wholly out of place towards the end of a session which has been devoted to the consideration and discussion of so many learned subjects.

I have made a few notes of my observations and experiences in a part of the world, and among a people which have probably been visited by few, if any, gentlemen here present, in the belief that they are of sufficient general interest to warrant their presentation to you.

The colony of Natal, which has been described as the "brightest jewel in the British crown," comprises an area of about 18,000 square miles, *i.e.*, about one-third the size of England. It has a population of 50,000 Europeans—most of whom are from the British Isles—20,000 Indians who have been imported to work in the sugar manufactories, 300,000 natives, the large majority of whom are Zulus. It is to these last I desire to-night mainly to confine my remarks.

The Zulus are mainly those who have fled from their own country, from time to time, in order to escape the vengeance of their chiefs or kings, who used to murder whole communities on the slightest pretext. In Natal, and under British protection, they were safe from molestation. They were, in earlier times, the only available servants both for domestic and agricultural work, so that being born in the colony I could speak their language almost as soon as my own. After completing my medical studies I returned to Natal to take up a government hospital appointment, and there remained over two years in practice. I took a special interest in the Zulus, could speak the language, and set apart a room in my own house exclusively for their treatment (the hospital under my charge being solely for the treatment of Indian emigrants), in consequence they reposed an unusual amount of confidence in me. I had therefore exceptional opportunities of becoming acquainted with, and appreciating certain habits and customs, which are of special interest to a medical man.

Two operations performed on native patients, in particular, seemed to excite their wonder and admiration—a tracheotomy performed on a native girl, and the removal of the testicle of a chief—so that in riding along the road it was no uncommon thing to be saluted thus—“‘Inkoos’ (chief), oh! thou who removest testicles and after which the man procreates;” or, “Oh! thou who insertest iron tubes into the throats of men, by which they breathe and do not die;” or, in regard to chloroform, “Oh! thou who pourest water on to the cloth and makest the man to die, then thou cuttest off part of his body, and makest him live again and he knows none of it.”

The man who acted as my housekeeper, used to circulate some extraordinary stories of my powers, so that I fancy the people used to believe that I was in league with some unearthly power; one story he had told, in order to duly impress a patient, was that I was in the habit of manufacturing chloroform by boiling water in a skull at dead of night, singing and dancing the while. This man was a Zulu, and I think merits a short description as one of a common type. From long residence in the towns he had become semi-civilised: he had been baptised a few years before into the Christian church, and had forsaken his primitive style of dress in favour of one more or less resembling the European. He was a fair cook and faithful servant in many respects, but like many of his race had embraced many of the vices, and few of the virtues of the white people. When admitted to the church he had chosen the Biblical name of Nicodemus. This is a curious custom which the missionaries appear to favour—the native is generally the better pleased the longer the name. The effect on a mission station is sometimes comical to a degree. One could pass from the house of David to one in which Goliath held his sway; Jacob and Esau might be found living peaceably side by side; Abraham and Jeremiah twin brothers; Zacharias, Nathaniel, Job, all members of one family, poor little black mortals, looking as if the weight of their ponderous names would prevent any chance of success in this life. My servant was called Nicodemus, but in case I might give way to a desire to abbreviate his name into "Nick" (which, however, appropriate, might not have been politic), I suggested a change. His Zulu name was Macegine, this was out of the question; so as he came into my service in the month of July, I called him "July." He was quite pleased, and when asked his name would proudly exclaim, July Nicodemus. He was an observant man, and from constantly assisting me in my work came to consider himself almost as good as his master. I had to discharge him summarily however, for on one occasion while away from home on a month's holiday, he gave way to the seduction of rum, and with my umbrella up (a great sign of dignity to the Zulu mind), he had paraded the streets of the town, stating that he was acting as my *locum tenens*; he had also consumed most of the provisions in my larder, with the help of some young women friends. He is now in practice, I believe, among the natives, on the strength of the reputation made in my service.

Among the natives in Natal and Zululand are certain individuals who are known as "'nyangas" (doctors), either male or

female, for there there is no opposition to the medical education of women. The English word "doctor" does not give an adequate idea of the character of these remarkable people, for in addition to the more or less legitimate practice of medicine, they profess many and varied supernatural powers, such as the preparation of "love philters," with which the possessor can capture the affections of the object of his or her choice, or like the Scotch spae wife, the ability to tell with exactitude what has happened in the past, what is happening at the present, or what will happen in the future, to persons or things many miles away—ability to detect a thief, charm an evil spirit, expose a witch, make rain, or compose a song.

In the colony the terms "witch" or "witch doctor" are applied colloquially to both sexes alike. I will follow this plan to-night, so that when I speak of "witch" I do not necessarily apply the word to a female.

I was never able to learn, how, exactly a man or woman acquired the knowledge necessary in order to start practice as an "'nyanga." There appeared to be no rule. In some cases the function seemed to be hereditary, the father instructing the son, who might be expected to inherit in some degree his father's supernatural powers. In other cases, a man having observed the habits and exercises of a medicine man in his own tribe, would suddenly appear at a distant part of the country where he was unknown, and start business on his own account. By no words, probably, shall I be able to convey to your minds an adequate conception of their style of dress, which is grotesque in the extreme, and which offers a marked contrast to the "moucha" of the man or "'sdwaba" of the woman, which in each case is a simple covering hanging round the loins. I cannot do better than quote the words used by an old colonist and acute observer of native habits, the late David Leslie, who spent his last days in Glasgow, and who in an article contributed to the *Herald* in May, 1862, thus describes the native witch doctor:—

"I never saw such a horrible looking being as this woman. In height she was about the middle size, and very fat. From her ankles to the calf of her legs was wrapped round with the entrails of a cow, or some animal of the kind, filled with fat and blood. Then came the usual petticoat made of hide, secured and embroidered with lions' and tigers' teeth, snakes' bones, beads, round bulb-like things, little buck horns, and such savage *bijouterie*; round the loins was one mass of entrails, snake skeletons, medicine bags, roots, human and other teeth, brass buttons, and expanded bladders. The body

was tatooed all over and smeared with red and black earth; round the neck was a repetition of the above ornaments, the hair was long and smeared with all kinds of abominations, with a stuffed snake round the forehead by way of decoration; a tiger's skin hung down the back with the grinning physiognomy showing over her head, and the head of a snake peering with startling life-like likeness out of its mouth."

In the photograph of the woman I hand round, you will see many points of resemblance to the above description, while in that of the man you will notice a felt hat of British make, which has been decorated in lavish style with bladders, feathers, &c. In that hat are supposed to reside many of his magic powers; and I have seen a paraffin tin, and a lady's dress improver decorated, and carried about in the same way.

The natives have a profound belief in the supernatural powers of these people, and resort to them for assistance on all occasions of doubt or difficulty. No argument or demonstration has the slightest effect in changing their convictions. I know that even many well educated English people in the colony confess to having a half-belief in them, and will relate examples of their power which would throw in the shade many of the spiritualistic manifestations said to be obtained by impostors in this country and America. My estimate of them is, that they are shrewd, sagacious, and observant, and, just as spiritualists and others in this country, have discovered means by which to gull their victims, so the witch doctor has learned methods which best enable him to carry out his rôle, and make a living.

To illustrate their methods, I shall give an account of a scene which is of common occurrence. We shall suppose a man to have lost a cow, and, having sought for her in vain, that he sends for the witch doctor, in order to find out where she is. As the loss of the cow has been the excitement and talk of the neighbourhood for days past, in all probability the doctor will know many of the circumstances of the case, and foreseeing that he may be consulted, has been careful to glean as many facts as possible, so that when the consultation commences, he will astonish his clients by giving a vast deal of information, such as the age and colour of the cow, the day on which she was lost, and so on. He is supposed to know absolutely nothing about the case, and in order to propitiate the spirits, he orders that the blood of some animal should be shed, and having had a hearty meal of the slaughtered animal, he will commence, amidst the most extravagant antics,

to elucidate the case. His clients sit down before him, and after each statement shout "eiswa" (meaning hear him), almost equivalent to our "hear, hear." The doctor may start thus:—"The cow was black ('eiswa'). It was lost last Monday ('eiswa'). Was last seen by the river." As each statement becomes more and more exact, the clients are worked up to a tremendous pitch of excitement, and begin to dance and caper about.

Suppose the artful doctor should happen to know nothing of the loss about which he is being consulted. He appoints a time when two or three of those most interested sit down before him. He will commence by making a few general statements. After each one the men cry "eiswa." If his statement or guess should happen to be true, it is received with loud shouts of "eiswa," "eiswa"; if false, the word is repeated in a weak and half-hearted manner. So that from the nature of the response the doctor is able to judge as to whether he is correct or not. He pretends to see the cow in his mind's eye. "The cow is black," if the response is weak he knows he is wrong, and will immediately correct himself by saying, "No, there is a black cow obstructing my vision, the cow is white." Ah! think they, he is on the right track now, and he is greeted with loud shouts and "eiswas." "The cow was a young one," again his dupes will indicate by their answers whither he is correct or not; and so he will go on guessing the history of the cow, until he had eeked out of his simple and unsuspecting clients all the information they can possibly give. He will then carefully weigh the facts in his own mind and decide what is most likely to have happened to the cow; in many cases he is right, in many also wrong. But in all forms of quackery, a single success far outweighs a dozen failures. Hence the implicit confidence of the natives in the witch doctor or "'nyanga."

A younger brother of mine, who is at present in Natal, has become wonderfully expert in the practice of so-called ventriloquism. He has two dummy figures, an old man and woman, with movable jaws. He can speak Zulu fluently, and had exhibited his dummies from time to time to the natives living on his estate and in its neighbourhood, who had been so amazed, that the figures were at once voted to be witches.

My brother happened one day to be standing near some of his natives engaged in farm work, when a strange native who lived a few miles off happened to be passing, and entered into a conversation with the other natives, most of which my brother heard. He stated that he had lately lost a mare and foal, and

was just returning from a wearisome search, which had been fruitless—he had scoured the country round without success. He was asked if he had been to a certain locality about thirty miles off. He said that was one of the few places he had not been to, but as he was in despair, he would consult a witch doctor. The Kaffirs immediately advised him to try to obtain a consultation with my brother's wonderful witches. He said he would consider the matter, and went his way.

Next morning my brother was amused to find the man waiting to see him; so, partly by way of practice, and partly to see how far he could make the dummy appear to speak, he consented to a consultation, and brought out the female "nyanga," who immediately fixed her awful eye upon the trembling man, and began—"Oh, yes, you are the man who has lost a mare and foal" on such a day; "you have looked in this and that place without success, but have neglected one place" mentioning the one thirty miles away spoken of the day before. "Go; you will find your belongings there." By this time the native was in an awful state of terror. Shuddering, his eyes starting from his head, he dropped on his hands and knees and crawled out of the yard, in order to give no offence to the great "nyanga," and with a yell set off homewards.

My brother saw that the native had been much impressed, and wondered what excuse he could offer when the irate and disappointed man came back, after having tramped the sixty miles in vain. In about a week, back came the man, full of the praises of the great witch, which far surpassed anything he had ever heard or seen. He had found his mare and foal, and wanted to know the fee. This case made a reputation for my brother as a witch doctor that he had no desire for, and one which he has never lost.

Quite recently my brother wrote to tell me of a somewhat similar experience which has naturally strengthened his old reputation of being possessed of supernatural power. One of the natives in his employment had lost a sovereign. Money is very dear to the nigger, and he went with loud wailings and complaints, stating that he had lost his heart's blood, his only comfort, &c., and asked my brother to use his power to discover the lost money. My brother made a few enquiries of his house servant as to who slept in the same hut with the man—judging that the money had been stolen, and that individual who had most opportunities would probably prove to be the thief. He was told that the man who shared the hut did not bear a good character. As there was no evidence, it would not have been the slightest use to accuse

him in the ordinary way, or to have him arrested, so he determined to try the effect of the dummy again. He gave orders that the men should build a fire in the yard, and all gather round it at night; and stated that his dummy would appear and clear up the matter.

Imagine a dark night, with the anxious and expectant faces of the black men lighted by the fire, the still solemnity of the occasion when my brother appeared with the dummy (the "nyanga" who had in a former case given such ample proof of its supernatural powers), which was in an unearthly voice to give its opinion on this mystery.

Without preface the dummy plunged into the subject—declared that an awful theft had been committed. After dwelling on the heinousness of the crime, the question came to be, who was the culprit. Then, turning its head slowly, the "nyanga" fixed its eye on the suspected man sitting in the circle, and, calling his name, declared him to be the thief. My brother awaited anxiously the result of his venture; slowly the man arose, shaking with fright; came forward, at the same time unbuckling his skin purse from his girdle, and gave up the sovereign, which was at once handed over to the gratified owner. The other men waited. "What is to be the punishment?" asked one. The sentence was ten strokes with a stirrup leather, which were promptly applied, and the man hunted from the camp.

The belief in witch doctors seems to be almost ineradicable, and offers one of the greatest bars to the progress of Christianity amongst the Zulus. I was witness of a distressing instance of this general belief which very well illustrates it. On one of the mission stations, about 10 miles distant from the town where I was in practice, there existed one of the most advanced and successful schools to be found in Natal for native girls. There were about 70 girls, varying in age from 10 to 20 years, receiving instruction. On one occasion I had been shown through the school, and saw with interest how far these young women were advanced in ordinary English education, reading, writing, and summing, all performed in a highly efficient way. Some months later I was called professionally to the same school to attend a girl who was ill of pneumonia. I found the missionary and the people of the station in a state of consternation and dejection. Of the seventy girls in the school only five remained, the rest had bolted to their homes, because they believed that the sick girl had been bewitched by one of their number. The story was, that one of the girls at breakfast one morning, in eating a

piece of bread, had evidently allowed a crumb to pass into the larynx, which caused her to cough violently and spasmodically for a short time, but was soon better. The girl beside her, presumably as a joke, said, "Oh! your bread has been bewitched" (tagatied). The rejoinder was, "Who has bewitched it?" "Oh!" replied the girl, pointing to one immediately opposite, "it was Susannah over there." At this all three laughed, and no more was said. As fate would have it, about a week after, the girl who had coughed was exposed to cold, got a chill, and was confined to bed. Immediately the incident related above was remembered by the girls spoken about, and the conclusion came to that after all the girl had been bewitched, and was now ill in consequence, and Susannah was the witch. And in case they might share a similar fate, determined to run away. This they did, leaving behind them only the supposed witch, the patient, and three other girls.

Worst of all, the patient was informed of what had happened, and at once made up her mind that she was doomed. The physical signs, when I first saw her, pointed only to an involvement of the base of one lung, and, had other circumstances been favourable, the prognosis would have been good. She was morose, and refused to be roused, would not speak or take any nourishment, and, in spite of all that could be done, she gradually sank.

Many of the girls who fled had been three, four, and five years in the institution. This indicates, in some degree, the discouraging nature of mission work which is carried on with great vigour and some success among the Zulus.

Among the natives sickness, death, or disaster of any kind, is often attributed to the malicious interference of some person, and the services of the witch doctor are in request to point out the culprit, which he does after going through certain ceremonies, and the penalty is frequently death, not only to the person accused, but to all his family and near relations and confiscation of all his belongings. This custom is called "smelling out," from the fact that the witch doctor is supposed to use his olfactory sense in tracing the witch. Of course this practice is not permitted in Natal, and in Zululand is now, I believe, of rare occurrence.

When I was a boy, a Zulu on the sugar plantation used to relate how he had barely escaped with two wives from Zululand. Pleuro-pneumonia had broken out among the king's cattle. He had been "smelled out" by the witch doctor as the cause of the disease. Some soldiers were

despatched to kill him, but getting wind of their intentions, he had made all haste to cross into Natal, and he told how his pursuers appeared on the Tugela banks and hurled their assegais at him as he helped his wives across the river and escaped.

As to the qualities of these "nyangas" as practitioners of medicine I cannot speak in very high terms. As one generation has no written language by which to communicate its experience and discoveries to another, there is no system of medicine, only the knowledge of certain properties of some medicinal plants seems to be passed down by word of mouth. Each doctor formulates his own methods of diagnosing and treating a disease. Almost every disease is treated by drugs which have a powerful emetic and purgative effect. The Zulu has no faith in a medicine which does not give the system a shock. He says, "disease is a strong devil, and needs a stronger one to drive him out."

The medicines are almost always infusions or decoctions of native plants. A handful of roots may be thrown into an indefinite quantity of water, and boiled for an indefinite length of time, after which an indefinite quantity is drunk, so it is not surprising that one hears occasionally that a native has died while under the treatment of his doctor (the natives say) before he had time to take enough medicine to be cured. I have no doubt that the emetic properties of the medicines save many who would be poisoned if the draughts were retained. Once a man came from a distance to see me; he was suffering from ague. I prescribed some quinine powders and said I thought he would soon be well. In a few days his son came back to ask me to refund the amount of consultation fee, as the medicine was doing no good. I expressed my surprise at this news, but with a look of withering contempt the young fellow said, "How can it be doing good when his bowels have only been moved twice in four days." I grasped the situation at once, but asked if the shiverings and vomitings had not ceased. "Oh! yes, they were much better." I ordered a stiff calomel and jalap powder—the old man came down to see me afterwards, stating that he had enjoyed that last powder so much, *would I give him another.*

Two or three diseases they seem to treat on much the same lines as ourselves—viz., tapeworm, diarrhoea, and dysentery. Tapeworm is very common, and in its treatment they use an infusion of the root of the male shield fern. This plant grows along the banks of all the streams, and the knowledge of its use is so universal that it can hardly have been supplied by

European doctors. In fact, it is I suppose within the bounds of possibility that our knowledge of the medicine came through them, just as the use of salicylic acid is said to have come to us through the Hottentots, who have for generations used infusions of the willow leaves in the treatment of rheumatism. The astringent barks of certain varieties of mimosa are used in cases of diarrhoea and dysentery. I prepared some tinctures of these barks, and used them in a number of cases with success.

The witch doctor is paid strictly by results. He gets nothing for his visit and consultation, the latter may last half a day or even longer in an important case; he often superintends the administration of the drugs, staying with the patient for several days for that purpose. The treatment, as I have already described, seems to be based on the principle of kill or cure; if the patient survives and recovers the fee is generally a cow, value about £5 to £7. This system has its disadvantages, for the doctor and patient often differ as to the result—the patient stating that he is no better while the doctor declares that he has been restored to perfect health. I was amused to see, even when they came to me for advice, how they clung to old customs, and thought it a gross injustice to pay a fee before they had any means of judging of the efficacy of the medicine I prescribed.

Many diseases are referred to some abnormal condition of the blood. Tumours and swellings of different kinds are all said to be accumulations of blood. Thus, I have seen a fatty tumour, ascites, sarcoma, hydrocele, abscess, all diagnosed by distinguished black physicians as accumulations of blood. Headache is often put down to a small black beetle creeping over the brain, which is supposed to have passed in by the ear during sleep—one man actually brought me a beetle he said he had found under his head on waking in the morning, and which he knew must have come out of his brain by the ear.

All the "nyangas" I ever spoke to had no knowledge of anatomy or physiology—did not know the functions of heart or brain. I asked one man what brought about movement at the elbow-joint, at the same time showing him the biceps muscle; he said it was the blood rising up and pushing the skin before it, and thus causing the forearm to approach the upper arm. They confine themselves almost entirely to medicine. I have never known of a surgical operation being performed, except in *one case*, where the clumsiness of the operator showed itself in a number of cicatrices about the vagina of a woman on whom, at one time, a craniotomy had

been performed, and on whom I was called to attend at a second confinement, on account of the cicatricial contractions offering obstruction to the passage of the child's head. The natives, as a rule, treat all their wounds and fractures themselves, and never think of sending for a doctor. They thoroughly appreciate the necessity of keeping a wound clean. If it should happen to be on the scalp, the wooly hair is shaved from the lips of the cut with a piece of broken glass, and syringed in the following way: the operator, after washing out his mouth, fills it with clean water, and ejects a thin stream with considerable force between the tip of his tongue and upper incisor teeth, and it is allowed to play on the wound—a perfect syringe—and, moreover, the man has free use of both hands to clean the edges of the wound. Afterwards it is covered with the broad succulent leaf of an aloe, and in spite of the absence of carbolic acid and per-chloride of mercury, they seem to obtain the best results.

Fractures are very uncommon, for the reason that the Zulu has an intense aversion to removing his feet from *terra firma*. He will not climb a tree or mount a horse, so that he seldom falls from any great height. If a fracture does occur, it is put up in ingeniously made splints, which consist of a number of narrow strips of wood, bound together by grass fibre or strips of tendon.

Dislocations appear to puzzle them, and as being beyond their power, they generally seek the assistance of their own or British doctor. I will relate, with your permission, two amusing cases of dislocation I was called upon to treat.

One day a fine-looking Zulu girl presented herself with the widely gaping mouth so characteristic of dislocation of the lower jaw. Her friends had already taken her to a witch doctor, who, after vainly trying to press the jaws together, told them that the girl was bewitched, and that the jaws would not close till justice had overtaken the evil-doers. They found their way to me, however. The history of the case was this:—The girl had been expecting a visit from her lover, and had taken the usual emetic, but as it was not acting sufficiently well, she had attempted to assist by irritating the throat with the finger, but had pressed so far down that the jaw was dislocated. It is a regular custom among the Zulus, before setting out to see their sweethearts, to take an infusion of a plant which causes smart emesis. They say they feel "clean" after it—I suppose just as we should after a good wash.

One day an extraordinary group presented itself at my house

—a man with hands tied behind him, guarded by two men with sticks, shields, and what not, which gave them a warlike appearance. They were accompanied by a woman whose jaw was dislocated, and the mouth gaping. The situation was soon explained. The Zulu prisoner had an old rusty set of tooth instruments which he said he had got many years before from a missionary, and away in the interior (for the people had travelled a good many miles) he had been in the habit of drawing teeth for suffering humanity around him; in attempting to pull the woman's tooth he had dislocated her jaw. The enraged husband, thinking her bewitched, had promptly taken the man prisoner, and made him accompany them to see me. The poor dentist was in a state of alarm, and swore faithfully to give up tooth-pulling if I would help him out of his scrape. I reduced the dislocation; the dentist paid the fee. I confiscated the tooth instruments, and they left my house on perfectly friendly terms, chatting and laughing, all evidently pleased with the result of their visit.

The natives practise counter-irritation most extensively, and in a very radical manner. Over any painful or swollen spot they make a number of small incisions in regular rows, and then freely rub in various substances. They buy powdered sulphate of copper (blue stone) largely for this purpose; and gunpowder they also use. So much does this practice obtain, that a man who has been an invalid for any length of time may have his body more or less covered with numerous small cicatrices, showing the position of old counter-irritations.

The average native has a profound belief in enemata, which he takes periodically. He is specially fond of injections of sea water, and the regular Sunday employment of many is to go down to the sea shore and there administer rectal injections to each other. The native goes close to the water edge and lies prone on the sand, while his companion inserts the narrow end of a horn into the anus, and with a vessel pours pints of water into the intestinal canal, and in fact only stops, as he expresses it, when his friend "is full."

Their method of smoking is peculiar; they use the instrument I now show you, with the dried young shoots of the Indian hemp. They inhale the smoke, which intensely irritates the respiratory passages. They smoke in groups, the horn passing from one to another, and the pastime goes on amidst the loud and prolonged coughs of all. Each man in his turn takes half a dozen long draws, and, though a copious flow of saliva takes place, he does not eject it until he has passed on the horn; then, taking the split half of a long reed, which

forms a runnel, he gradually drains the saliva away from his mouth, at the same time making various patterns and shapes on the ground with it. After the horn has passed round several times, the drug begins to establish its well known physiological effects of causing a rapid flow of ideas through the brain, and one after the other the men break out into interminable speeches, which are shouted out at the pitch of the voice, and roll off apparently without the slightest mental exertion. If the indulgence is continued they become dull, dazed, and sleepy, and drop off one by one. I have seen one or two cases of old men who were quite demented through the free and constant use of the weed.

They use tobacco snuff very freely. During the day's work every Zulu expects a few breaks of five or ten minutes in order to snuff. They guard carefully against sneezing, as they say it is the sign of a want of manly vigour. Two friends meeting invariably snuff. They squat down, and after a few remarks one will say—"sheala-u-guy" (meaning help me to some snuff); the other will answer—"ung bemi" (meaning I don't use snuff). This is etiquette; for after the conversation is resumed, he pulls out his snuff-box and helps his friend liberally, and uses it himself.

The men have a curious custom of enclosing the penis in small boxes, which they call "Incwedu." Drawing the prepuce and skin of the penis forwards, they push back the glans and body, and then slip on the little round box—sometimes consisting of a hollowed out young calabash, or made from the fibre of the banana. For ordinary occasions the box is secure, but if the man indulges in any undue exertion, such as running a race, he may be seen to clutch wildly at a small dark object rolling at his side, unless indeed he has taken the precaution to whip it off before he started.

The girls before marriage go about almost in a nude condition, and when menstruating, plug the vagina with leaves.

Umbilical hernia is very common; I suppose from the fact that after birth the remnant of cord attached to the body is allowed to take care of itself. They never wear a truss of any kind, and so one sees the funniest varieties of protrusion at the umbilicus, according to the special way in which the skin has stretched. I never saw any other variety of hernia.

The uncivilised and uncontaminated natives are, as far as I observed, a very moral people; illegitimate births and venereal diseases are almost unknown amongst them—certainly I never saw a case of either outside the towns and neighbourhoods; but I believe the sexes before marriage, indulge in

some form of mutual sexual excitement, which appeared to stop short of absolute connection, and which, as far as I know, is a habit confined to the Zulus; it is called "Hlobonga."

Their sexual relations are much mixed up with superstitious and hypochondriacal beliefs. A man believes, for instance, that, by anointing a woman with a fatty preparation of the body of certain birds, that any other man having any sexual contact with her will contract some form of disease called "Jovella."

This "Jovella" may take the form of any internal pain or disease, and is quite distinct from venereal disease proper, which they seem only lately to have become acquainted with. I saw a good many cases of supposed "Jovella," and frequently found the man to be hypochondriacal, a guilty conscience exaggerating the vague sensations of dyspepsia or the pains of neuralgia, &c. This belief in "Jovella" has a restraining influence on the passions of the men; so that an unfaithful wife would be almost a curiosity among them.

Gonorrhœa, syphilis, rum, and certain other comforts and luxuries of civilised life, seem to have been introduced to the natives by the whites. Each town presents a nucleus of venereal disease, which is gradually enlarging and extending its benign influence among the natives around.

Syphilis appears in its most loathsome and disgusting forms, I presume, on account of the virginity of the soil. They call it white man's disease, and never consult their own witch doctors, as they say they can know nothing about it.

It is, I believe, supposed by many that the Zulus practise circumcision, and make this statement in support of a theory that the Zulus represent part of the lost ten tribes of Israel. They may be Israelites, but they certainly do not practise circumcision commonly, as I never saw a Zulu circumcised.

I had very little obstetric practice amongst them; for the reason, that their labours are usually normal and easy. To illustrate this, I may mention that one woman on whom I attended for hydrocephalic foetus had been in labour for three days, and, when I arrived, was surrounded by several women, who were shouting, swearing, and pulling her about, declaring that she was trying to keep the child in.

I performed craniotomy in this case; this, with the single other case before mentioned, and three forceps cases, were all I ever attended. Singularly enough the forceps cases were in women living on a Mission station, all of whom had become more or less civilised in their habits.

In labour the woman passes through all the stages on her

knees, squatting back on her heels, the attendant grasps her round the abdomen, from behind, with both arms, and, after each pain, follows up and fixes the womb: this plan has, I think, much to recommend it; the weight of the foetus is allowed to act as an aid, rather than a hindrance, to labour during the whole time, and the power of the uterus, I take it, must be economised to a certain extent by following it down in the way I have mentioned. In any case, the labours are rapid, and puerperium short. The morning after labour, the woman takes the child to the nearest stream and washes both herself and it, and in two or three days will be at work in the fields again.

The pregnant and parturient woman is always treated with great consideration and care—especially by the husband.

In gynaecology I had a very comical experience which is worth recording. Sterility is a great disgrace amongst the women, the subject of it being often exposed to ridicule, and if no child appears after a certain number of years, the husband has the right to return the woman to her home and reclaim the ten cows he has paid for her. I was consulted from time to time by barren women, with what amount of success I had no means of knowing, until one of the wives of a well known chief, "Umquaue," a young well developed woman, who had been married several years without issue, came to see me, she had consulted several witch doctors without result. She had an anteflected uterus which I replaced, and inserted a pessary. She came back in a month and had it removed, and soon after became pregnant; the news of this success spread like wild-fire, and for months I was pestered with all sorts and conditions of women, anxious to be made to bear children, the majority long past the menopause; the climax was reached, however, when an old woman of about eighty years of age came to see what I could do for her.

The Zulus as athletes are not to be compared with the British-born subject. The white man is proverbial for his strength among them. In running and jumping they do not come up to the British average. True, they possess extraordinary powers of endurance, and can walk long distances in short times, but their lazy life altogether prevents a thorough development of the muscular system for any other exercise. In stature they do not exceed the British average, and the "Umslopogaas" type of man is as unique amongst them as he would be amongst ourselves.

I have referred to their powers of travelling. They go at a swinging trot which is kept up incessantly; they pass days

with scanty food, merely, when they feel hungry, tightening up the strap which is fastened round the abdomen, which action they say is almost as good as a meal.

I had many opportunities of demonstrating the superiority of the educated medical man when compared with the witch doctor. The full relation of a case will illustrate this point, as well as the inconveniences which the colonial practitioner has at times to undergo, which can hardly be appreciated by the man, in a city like Glasgow, who makes his daily rounds in his brougham, or less luxuriously perched on the top of a tramway car.

One morning a native called and asked me to make all haste to visit his brother who, he thought, was at the point of death, and who, in spite of being treated by a reputable witch doctor, was getting worse. He lived he said about 15 miles away, and very close to a well known American mission station. I readily assented and appointed to meet him at the station at noon the following day; this I did, and the Rev. Mr. Tyler, the missionary, kindly asked me to lunch with him. I accepted his invitation, and said as the kraal was so close, I would push on to see my patient and be back in an hour. Little did I dream of what was in store for me. After riding for about 3 miles I said to the native that I supposed his home was close at hand now. Oh ! yes, was the answer, "se sifigele," we are almost there. We were now entering a very wild and rocky part of the country, with only a track through the grass to guide us. After going 2 more miles, I was beginning to lose patience, when suddenly we came to the edge of a vast amphitheatre, and for a few moments I was lost in admiration of a magnificent sight, the amphitheatre appeared to be about 20 miles in diameter, its sides wooded by thick velvety-green forests, the floor here undulating and intersected by streams that glistened in the afternoon sunlight, there broken into little hills; patches of green pasture land studded with browsing cattle, and the kraal homesteads of the natives generally placed at the summits of the rises, and looking like so many beehives in the distance. The track on which I stood disappeared over the edge of what appeared at first sight to be almost a sheer rocky precipice, and the native coming up indicated a kraal about 7 miles off, in the floor of the amphitheatre, as our destination. I was so enraged that I made a cut at him with my riding crop; he had expected this, however, and hopped out of the way with agility, then safely perched on the top of a rock a few feet away he begged for forgiveness, said his brother's case was desperate, his only hope was in me;

he had deceived me as to distance for fear that if he told me the truth I would not have ventured on such a long and rough journey. I declared I would not go a step further, and risk my pony's legs and my own neck down that rocky pass. The man then said it would be unworthy a great "nyanga" like me to turn back when I had only 7 miles to go, and he had often seen horses go down the track. This last assertion determined me to make the trial, though I now have strong doubts that anyone before me was ever foolhardy enough to take a horse down. I dismounted, and giving the man my horse to lead I followed behind, as the poor beast required some urging before it would start. We stumbled and staggered along, it was decidedly hard on the horse, and at several points he was within an ace of losing his footing, an accident which would have meant a roll of 300 or 400 feet over sharp rocks and boulders. I would have given a good deal to be safely at the top again, but as it was impossible for the horse to turn, we had to keep on, and we got to the bottom safely. Here I mounted, and allowing the native to hold by my stirrup leather, galloped on, on more level ground, and got to the hill top opposite the native's home, which was perched on another hill—the sides of the hills were so steep that I had to leave my horse tied to a tree, and slid rather than walked down, and scrambled up the opposite side.

The patient was lying on the ground in front of his house. As I had been expected and in sight for fully an hour the natives had gathered from the kraals around, in order to see what was to happen, so that the patient was surrounded by a crowd of men, women, and children. Many had never seen a white doctor before, and complained that I was just like an ordinary white man, and I overheard a few expressions of disappointment, as they declared I could do nothing without the usual charms of the witch doctor.

It was soon evident that the man was suffering from ascites. His abdomen was immensely distended. The native doctor, who had been treating him with the usual emetics and purgatives, was there, and I asked his opinion of the case in the hearing of all present. He said it was plainly one of accumulation of blood which had solidified, and the only chance for the man was to vomit it up. I could not refrain from bursting into a hearty laugh, the natives around evidently wondering at my temerity. I told them that there was an accumulation of a fluid not unlike water, and that I would soon run it all out and into a bucket which stood close at hand. They appeared incredulous of course, so taking a trocar and canula I plunged

them in, and soon a jet of clear fluid was spurting out into the bucket—now, many were the expressions of wonder and delight, which, however, were restrained by an old woman who cautioned them that they had not yet seen the end of the case. The trocar was a very fine one and the fluid took a tediously long time to flow away. I looked round for the witch doctor, but he had slunk away, and was nowhere to be seen. As I had had nothing to eat since early morning, I was reminded of the fact by my inward sensations, and I was soon doing justice to some sour milk and Indian corn which were brought. At length the bucket, holding two or three gallons, was full, the abdomen flacid and flat and my words had proved true. When the canula was removed, the demonstrations of joy were indulged in without restraint, the man's mother was almost frantic with delight, and it was only by the exercise of a certain amount of dodging and judicious generalship that I escaped being embraced by the old lady, an experience which would have been the reverse of pleasant.

I told the people the fluid would probably accumulate again and gave a doubtful prognosis.

Then commenced the weary return journey in the fast growing dusk, I reached the top of the rocky path just at dark without mishap. I did not waste time by calling at the mission station, which was a little off the straight road, but pushed on, and I reached home at 11 o'clock that night.

The further history of the case is interesting. The brother came back in about two weeks to say the abdomen was swelling again. I offered to take the man into the room in my house. How two men ever got the invalid safely up and down the hills and over the rocks is a mystery to me: he was carried every foot of the way by two brothers. I had him with me ten weeks, and during that time I tapped him eight times, the fluid accumulating more slowly after each tapping, and he was finally discharged quite well. This man had a badly united fracture of the lower jaw; he stated that a missionary had fractured it in attempting to pull a tooth, and had sent him away without even applying a bandage, telling him that tooth pulling was *always a little painful*.

A petty chief came one day to consult me. He had a very large tumour of the testicle which interfered with his conjugal happiness. I told him the only thing I could do was to remove it by operation. This frightened him so, that he absolutely refused and made off in all haste. In about a week he came back, with three of his wives, of which he had five, to talk over the matter. On learning that I really proposed to

remove the testicle with the knife, the wives in a modest and business like way, wanted to know whether they would be likely to bear children again. I was able to reassure them on this point, then, after a long palaver (during which I had to give a demonstration on the anatomy, physiology, and pathology of the testicle, and indicate to the women on the unfortunate husband the exact position of the incision I intended to make), they consented to the operation with many expressions of distrust. I took the man into my house and with the assistance of Dr. M'Kenzie, of Durban, I removed the tumour, and in due time he was discharged. He afterwards came back to inform me that one of his wives was pregnant, and just before leaving the colony I met him on the road, when he told me that his wife had borne a girl, and then he expressed his delight and satisfaction that I had not removed the testicle employed in the manufacture of girls, as with the Zulus, girls represent so much saleable property, worth ten cows and upwards in the marriage market.

There were different tribes of natives scattered throughout the colony, who acknowledged the rule of different chiefs and head men. They were constantly quarrelling with each other, and any common gathering, commenced in ever so friendly a fashion generally ended in a melee, in which numbers would be seriously injured and a few killed. After a fight had occurred in my district, it was my duty as district surgeon to examine all those who were hurt or killed. This generally necessitated a two days' outing, when I had some of the roughest and most difficult hilly and rocky country to ride through. I was always accompanied by two native runners who carried my blankets, soap, and writing materials. The different kraals at which the natives were lying were, as a rule, separated by a few miles, often situated in the most inaccessible places, which could only be reached on foot. The natives were always hospitable, and as I was a government official, gave me the best of food and as good a hut as they had for a place to sleep in, but this at best was a dingy hole and smoky, and difficult to get any rest in at all.

They had an intense disgust for *post-mortem* examinations, and could not stand their relatives being cut up. They said "Is not the man dead already, why do you want to kill him again?"

Whenever I appeared in sight of a kraal where a dead body lay, it was the signal for the commencement of loud wails and cries from the women and children ("My-eh-ba-bo"), which were heartrending, and could be heard for miles through the

still clear air; the men were quieter, and submitted stolidly to the inevitable. When I arrived at such a place, I would harangue the crowd, stating that they should be glad to have the body examined, for, without my evidence, it would be impossible to bring the guilty one to justice in a court of law. Now the cries of grief would be changed to exclamations of approbation, and they would crowd round the body while the section was going on, in order to draw my attention to every small mark which would indicate violence.

On one occasion I received instructions from the magistrate to proceed without delay to examine some natives who had been dangerously hurt in a faction fight. I arrived in the evening at the kraal of the Chief Kamanga (30 miles away), many of whose tribe had been wounded. I decided to stay the night there; and while I attended to the food and safety of my horse, I sent one of my native policemen to acquaint the chief of my arrival. He sent back word to say that he was engaged with his wife, and would see me later; this might have meant hours, so I walked up to his house, which was situated at the far away circumference of the circle, in which the huts of the village were arranged, and which were entirely peopled by his wives, children, and retainers.

His own house was built somewhat like a small Colonial house. I walked into the main room, the chief was in an adjoining room having an interview with a fine looking young girl of about 20, who was in a few days to become his wife; he himself was close on 70 years of age, and already had 18 wives. He was a fine specimen of his race, but his eyes and features displayed the unmistakable evidence of over-indulgence in rum. I sat and talked to the old man for some time, when he ordered some of his girls to bring in some native beer and sour milk. After we had discussed this, I offered him a cigar, and commenced to smoke myself, he said, however, he would prefer a little of this, pointing to the part of my breast, which experience had taught him was most likely to conceal a pocket flask. I asked if he wanted brandy; his eye lighted up, and he would not believe that I had not some drink with me; he said he would just as soon have rum. I persuaded him, however, to take a cigar, a luxury he was evidently not used to, from the gingerly way in which he handled it; but he smoked on bravely—a pitiable spectacle—the smoke causing his eyes to water profusely; after a while his conversation began to flag, and I imagined I saw him grow paler; at last he jumped up and waddled out to the rear of the building, where I heard him giving vent to his feelings. He came back much

exhausted, and said, "That was fine medicine, only it was very strong." I took my leave for the night to turn into the hut placed at my disposal; with my saddle as a pillow, and blankets tucked round me, I soon dropped off to sleep; but alas! only to be soon wakened up by cockroaches, which were in great numbers careering wildly over me. I lighted my candle, by way of diversion, and sang "Rule Britannia" at the pitch of my voice; the unusual sound of my song first attracted the attention of the dogs, of which there are always great numbers at a kaffir kraal; the din was frightful, and soon the whole place was in an uproar—there had been so much excitement about the recent faction fight, that it was feared a night attack was being made on the chief's kraal by the rival tribe; the men stood by their arms, and the women shrieked. I, who was the innocent cause, strolled out into the beautiful moonlit night, to watch the progress of events, glad, since I could not sleep, to be otherwise amused. Natives were cautiously sent out from different points of the enclosure round the kraal to reconnoitre. But at last, seeing it was a false alarm, the dogs were chased in all directions, and quietness reigned again. In the morning the whole settlement turned out to see me off, and, in saying good-bye to the chief, he asked for another cigar, so that when he felt ill he would smoke for an emetic. He also said he liked me, and offered me one of the fattest and worst smelling girls of the whole village to wife; this was embarrassing, and etiquette forced me into a prevarication, when I stated that I should have been delighted, only that my relatives might not be pleased if I hurried into a matrimonial alliance without consulting them; he thought this quite sensible and reasonable, but offered to set her apart, in case I might decide to take her. I thanked him for the honour, but begged that meantime he would refuse no reasonable offer for her hand, and gaily kissing my hand to the would-be Mrs. Campbell, I passed on to my duties.

My appointment as Indian medical officer necessitated a weekly visit to each of the surrounding sugar estates to see the Indians on the sick lists.

The Indians from the outset I found to be a most unsatisfactory set of people to deal with, they came with the most trivial complaints, frequently not ill at all, but desirous of getting off work for a day or two, so that I soon found that my duty was not only to heal the sick, but to detect those who were malingering, and send them out to work—a most important matter to the sugar planter, for every absentee from the field or factory, meant so much loss; at first my sick lists were

long and directions for treatment numerous, but after a little practice I was able to detect most of those who were shamming.

A favourite complaint was bowel complaint ("Bool complaint, sahib"), meaning either diarrhoea or dysentery. It is impossible to say whether a man has or has not these diseases, unless you see the character of his faeces, as I could not trust the description of the patient. I was at a loss for some time, as I knew in many cases I was being "humble-bugged." At last I hit on a plan which immediately greatly reduced the number of dysenteric and diarrhoeaic cases. Castor oil trees grew in great abundance about the barracks; many gentlemen will remember from their botanical studies, that this plant has a broad expanded leaf, with a natural depression in the centre, just the thing to hold an average dejection. I gave orders that every man who complained ("Bool complaint, sahib") should bring his last passage in one of these castor oil leaves, in order to support his complaint. As I have already said this plan answered splendidly, but you will imagine the effect was sometimes comical, when there happened to be several such cases on the same day. In filed the men, each bearing his precious burden in a castor oil leaf. I say "precious" advisedly, for on one occasion, a man had done what was necessary in a leaf and had inadvertently laid it aside for a little, when it was pounced on by a "brother in need," and a quarrel ensued between the two men when they appeared before me. Each declared the leaf and contents were his. I of course could only decide in favour of the man in possession, but suggested to the other, that if he were ill he might prove it by bringing another leaf. Happy thought, away went the Hindoo, and soon appeared holding his leaf triumphantly aloft.

At one of the estates, even with all these precautions, the cases of diarrhoea were far too numerous. I examined the water and enquired into the purity of the food, all to no purpose. One day at my usual visit, there were several cases of diarrhoea, but on examining the leaves, I noticed a marked uniformity in the character of the faeces. My suspicions were aroused. Could it be possible? Yes! all those leaves had been furnished by one old rascal who was suffering from chronic tropical diarrhoea, and who had supplied his friends with sufficient fluid faeces to put them on the sick list in return for bits of opium, curry, &c.

ON DRAINAGE TUBES.

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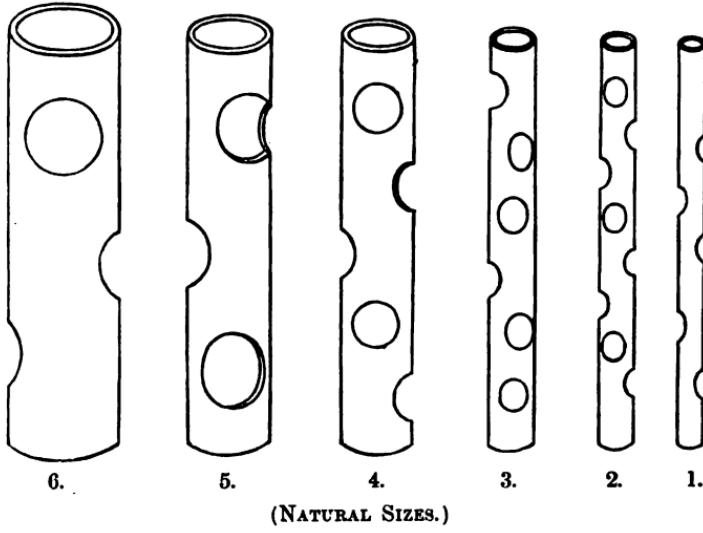
It will, I think, be conceded by most surgeons that few details in surgical practice are of more practical importance than the proper drainage of wounds. While drainage of some sort has been practised by surgeons for many years past, it is only since the introduction of the principles of antiseptic surgery that anything like a scientific basis has been constituted for the efficient adoption of the practice. In the few remarks which I here venture to give, my endeavour will be to indicate sundry little points of detail in the use of drainage tubes based on the principles above alluded to.

Of the many kinds of drains made use of at the present day none, perhaps, find more general acceptance with surgeons than those which take the form of a tube. While there are a few surgeons who prefer some other means of drainage, and certain classes of cases that may also seem suitable for other methods, by far the majority of surgeons prefer, and by far the larger number of cases require, the use of the tube. It is to this form of drainage that my remarks will be limited, and I shall still farther confine what I have to say to those tubes which are made of india-rubber. The use of glass, vulcanite, decalcified bone tubes, and others, is applicable only in special cases, but the india-rubber drainage tubes may be employed almost universally.

These elastic tubes, as sold for surgical purposes, are made of the purest Para rubber, in two colours, red and black. There is but little choice between them, both are of the same thickness, consistency, and elasticity, the only obvious difference being their colour. It is alleged against the black tubes that containing free sulphur they become coated with a white deposit when standing for any length of time, but from an antiseptic point of view this might rather be looked upon as an advantage than otherwise. The red tubes, however, also contain sulphur, but the colour produced by the introduction of antimony hides the white powdery deposit seen on the surface of the darker tubes. Every gradation of calibre exists between the smallest capillary tube and the three-quarter inch one. Some makers have adopted a scale of sizes. Thus, Messrs. J. G. Ingram & Son, of the London India-Rubber Works, Hackney

Wick, have eight sizes between what may be represented by a No. 2 and a No. 12 gum elastic catheter. For general surgical purposes, however, there is no need for this fine gradation; and later I shall venture to suggest a series of sizes on a scale which might possibly with some advantage be adopted.

As used for surgical purposes, these tubes are usually perforated, but the perforations, as made by the makers, are, as a rule, far too small for the objects for which they are intended. The size of the aperture, the evenness of its contour, and its proximity to its neighbour are all important items in rendering the tube perfectly efficient. Unless the opening is large it will be impossible for anything but thin fluids to flow through, and if irregular, thick viscid secretions will



be the more likely to adhere to its edges. As regards the nearness of the apertures to each other much greater importance should be attached to it than usually is. It should be remembered that the tube, when inserted into the tissues, is, in effect, a foreign body, and so likely to excite coagulation in the albuminoids of the outflowing fluids. Blood, serum, or pus, flowing through a long tube, is extremely liable to coagulate, and thereby frustrate the very object for which the tube is employed. By having large apertures close together, the channel becomes no longer a tube of dead material, but a canal whose sides are partly formed by living tissue. The escaping fluid being thus brought constantly in contact with living structures, there is less tendency to coagulation,

and so, blocking of the tube. I have not seen any tube in which this twofold fault, of too small and too few holes, does not exist; and not infrequently is an irregular jagged contour of the aperture an existing evil also.

To obviate, therefore, the present difficulty concerning many sizes, and the threefold objection which has been above indicated, I have selected a series of tubes, which I have numbered as 1, 2, 3, 4, 5, and 6. Except in very special cases, they will be found to supply all the necessary requirements of general surgery. No. 1 corresponds approximately to a No. 6 urethral catheter; No. 2 to a No. 10; No. 3 to a No. 14; No. 4 to a No. 18, and so on. The apertures are evenly punched, each being in diameter one-third the circumference of the tube, and so spirally arranged around the tube that three consecutive openings, if cut edge to edge, would completely bisect it. With regard to the proximity of the apertures to each other, no definite distance can be given; but they are made as close as is consistent with a proper rigidity of the tube. The woodcut represents the natural sizes and appearance of the tubes (Nos. 2 and 4 indicate the appearances best). They may be had from Messrs. W. B. Hilliard & Sons, Renfield Street, or the Argyle Rubber Co., 60 Buchanan Street, Glasgow, who have selected and made them under my instructions.

In the proper use of drainage tubes there are many little points of detail, which materially affect the full advantage to which they may be put; and while some are so obvious as hardly to need being indicated, others, less conspicuous, are too frequently overlooked.

In the selection of any tube, it is wiser to err on the side of having one too large in calibre rather than too small, and too long rather than too short. Every tube should project into the bottom of the cavity it is intended to drain. There will be thus less likelihood of the tube slipping in, on the one hand, or simply getting within the skin edges, on the other. The external orifice should be flush with the skin. Where the tube is introduced perpendicularly to the surface of the body, it is simply cut transversely, and, where inclined, it is cut obliquely. Without adopting this latter precaution, the subsequent pressure applied through the dressings tends to press together the sides of the tube, and so occlude its orifice.

It is wise in all cases to secure in some way the tube. I can recall two cases, which have come immediately beneath my own observation, where the absence of such precaution has given rise to much subsequent and serious trouble. In one case I examined a breast which had been removed for a

supposed tumour, and found instead of a new growth an encysted rubber drainage tube. In the history of the case it came out that the patient had had a suppurating breast some years previously. A tube used at that time had, no doubt, slipped in and been overlooked. The other case was that of a man upon whom I operated for a troublesome sinus running beneath the soft parts about the great trochanter. Two years before he had had an abscess opened, but the part had never healed, a continuous discharge taking place since. On slitting up the sinus, a rubber drainage tube, about an inch and a half long, was found.

Many ways are adapted for securing the tube, but one point must be carefully attended to in whatever method is made use of—the orifice of the tube must not be obstructed. Of these methods the commonest is probably to thread the wall of the tube with a piece of sterilised wax silk. This silk is thus prepared:—"Nine parts of beeswax and one part of carbolic acid are melted together. Silk thread of various sizes is steeped for some minutes in this mixture, till it is thoroughly impregnated with it. As the thread is taken out it is drawn through a cloth in order to remove the superfluous wax. The wax holds the carbolic acid, makes the thread more useful and fills up to some extent its interstices, thus preventing it from becoming soaked with fluids. The carbolised silk thus prepared is kept permanently in stoppered bottles or wrapped in carbolic gauze. It must not be steeped for any length of time in the lotion before being used, because the threads become opened out. If the thread be properly kept, the interior is aseptic or even antiseptic, and passing the thread through the fingers moistened with carbolic acid, or a momentary immersion in 1-20th carbolic solution, is sufficient to destroy any septic dust adhering to its exterior." I give this somewhat lengthy quotation from Mr. Watson Cheyne's book on *Antiseptic Surgery*, because it is important that in the dressing of aseptic wounds the material used for securing the tube should itself be perfectly aseptic. It is usually sufficient to puncture the tube at one spot only, and then knot the two ends. The piece of thread used should not be too long, otherwise it is apt to project beyond the boundary of the deep dressing, and so act as a capillary drain and conductor to parts not properly protected. In cases where there is some danger of a tube slipping into a large cavity, a loop should be made with the thread so that a fragment of the antiseptic dressing can be slipped through it.

It not unfrequently happens that some other method is needed to efficiently keep the tube in position, particularly

in cases of large cavities, such, for instance, as the draining of an empyema. One way is to split the tube longitudinally into two equal halves for about an inch, secure each division with a long thread, and tie the two ends together around the thorax. There are two objections, however, to this method; one, the calibre of the tube is narrowed at its orifice from the doubling in on each side of the two divisions when they are bent over the skin; and the other, the threads pass beyond the deep dressings. A far better plan is to run a medium size piece of silver wire transversely through the tube; form each end into a loop, and place a piece of dressing between the loop and the skin. As the tubes in these cases are always of large size, the wire passing across the canal does not offer any material obstacle to the outward flow of the discharge. Mr. Parker has an ingenious method. He takes a piece of thick india-rubber tubing of about the circumference of a cedar pencil; in the middle of this he makes a longitudinal slit of about three-fourths of an inch. Through the slit run the afferent and efferent drainage tubes, which are thus securely grasped (see Owen's *Surgical Diseases of Children*, p. 145).

Assuming, then, that a suitable tube has been selected, properly introduced, and efficiently secured, the next point for consideration is its subsequent management. While, so far, it has been possible to indicate with a certain degree of definiteness the various practical points to be attended to, there are no such precise rules to lay down with regard to its future management. One can only indicate in a general way certain considerations, to which attention should be directed, as possible guides to proper treatment; and in every case it is the individual judgment of the surgeon upon the condition of the part that really determines the right course to pursue.

If a tube is not draining properly, the chances are that it will be subserving the very opposite function to that for which it is intended; instead of acting as a drain, it may be serving the purpose of a plug, and as such it is only too likely to induce conditions the most prejudicial to rapid healing. When any discharge is confined it gives rise to tension, and tension causes inflammation and suppuration. Still further, the result of tension is to lead to burrowing, and the forcing asunder of parts which might otherwise have united by first intention. I have seen, in a case of amputation at the middle of the thigh, the stump become distended to such an extent through inefficient drainage, that on opening the flaps about three-quarters of a pint of sero-purulent fluid escaped. It is a little difficult to understand, under the modern

septic views of inflammation and suppuration, why the tension of sero-sanguineous fluid should give rise to the formation of pus; except it be that the fluid so dammed up forms a suitable nidus for the development of the pyogenic organisms. If proper attention be paid to the selection, introduction, and securing of the tube, it is never likely that this trouble of the tube becoming blocked at an early stage in the treatment of a wound will take place.

There are, however, many cases—and especially those of joint excisions for tubercular infections, with discharging sinuses and septic wounds generally—where, although acting efficiently at first, the tube subsequently becomes blocked from the thick viscid or flocculent secretions which invariably exude. In these cases nothing but complete removal of the tube, and its proper cleansing, is of any avail. And here I may be pardoned, I hope, for alluding to such a simple matter as the proper cleansing of a tube. It should be thoroughly squeezed, and rolled about between the thumb and fingers in an antiseptic fluid, and finally examined by looking through the tube from end to end. So often has a nurse returned a tube to me impervious from the existence of a small invisible coagulum in some part of its channel, that I make a point of examining the tube myself before reinserting it.

"No tube which one wishes to put back again should be removed until the third day, on account of the difficulty of returning it. By that time, however, it lies in a channel in the blood clot or lymph, and slips back easily." (Watson Cheyne's *Antiseptic Surgery*.) Should, perchance, the tube appear to be plugged within this period, a sharp injection from a syringe, or the insertion of a probe along the canal, will be sufficient to render it pervious.

A very important feature, as affecting the rapidity of healing, is the total withdrawal of the tube, and it is only experience and a careful consideration of the local conditions of the part, that can decide one when and how to do it. In most cases there is no doubt that the process should be carried out gradually—that is to say, the length of the tube should be shortened by degrees, and the calibre of the tube inserted similarly gradually diminished. In this way the parts are allowed to contract without any fear of discharges becoming pent up, and the skin wound, which is almost always the readiest to heal, maintained patent until the deeper parts have cicatrised. It is one of the greatest abuses a tube can be put to, to leave it too long in the tissues. By so doing, a sort of permanent sinus is established, which is sluggish to heal, and an ever ready channel for the incursion of septic material.

That tubes may prove as much conductors of matter from without as of discharges from within, should ever be borne in mind, and none but strictly aseptic dressings should be employed so long as there is a drainage tube in the wound. This naturally applies only to those cases which are aseptic from the first. I have very painfully impressed upon me, a breast case which I saw some years ago, and which I have ever since associated with this fact, of not properly protecting a wound containing a drainage tube. The mammary wound was perfectly aseptic, and being dressed with proper antiseptic precaution. It having become, however, quite a surface wound—with the exception of one place where there still existed a sinus with a tube inserted—it was thought that boracic dressings might with advantage be substituted for the carbolic acid ones. The day following the change in the dressings, the patient's temperature rose, the wound became septic, and in less than a fortnight the patient died of septicaemia. I have never ventured since to apply a weak antiseptic like boracic acid to a wound until all drainage tubes are out and no sinuses exist: that is, not until the wound is quite superficial.

There are a class of cases such as psoas or lumbar abscesses, empyemata, and in general any wounds in the thorax or abdomen, where extra precautions are needed in dressing. Every inspiratory or expiratory act tends to suck air in through the tube. Hence it becomes necessary to properly protect the orifices of the tube by applying over it, immediately it is exposed, a piece of gauze wet with an antiseptic solution.

In concluding these few practical remarks I may draw attention to a recent paper in the *Centralblatt für Chirurgie* (18th August, 1888), by Dr. Javaro, on "The Disinfection and Hardening of Rubber Drainage Tubes" (*gummidrains*). The customary practice of keeping tubes in antiseptic solutions of either carbolic acid 5 % or bichloride of mercury 1 to 2 % for a lengthened time leads to their becoming considerably softened, so that not unfrequently they are incapable of remaining pervious under a slight pressure from the tissues in which they are embedded. To obviate this the author places the tubes for five minutes—the larger tubes a little longer—in concentrated sulphuric acid, when they become hard and of a dark chestnut colour. They are then washed in 75 % alcohol, and finally kept for use in one of the ordinary antiseptic solutions. If the tubes are rendered too hard, they can be softened by working them about with the fingers.

TWO CASES OF COMPLETE LARYNGEAL STENOSIS PRODUCED BY WOUNDS OF THE LARYNX IN ATTEMPTED SUICIDES, TREATED SUCCESSFULLY BY MEANS OF TUPELO DILATORS; ALSO A CASE OF SYPHILITIC STENOSIS TREATED IN THE SAME WAY.

By DAVID NEWMAN, M.D.

COMPLETE laryngeal or tracheal stenosis is so uncommon as a consequence of wounds of the neck, that the two cases first referred to in this paper are worthy of being recorded. The treatment adopted was not only novel but also satisfactory.

The first case was that of a woman, aged 32, who was admitted into the Ward for Diseases of the Throat in the Glasgow Royal Infirmary, in February last. On enquiry, it was found that three months previously she had attempted to destroy herself by cutting the windpipe immediately below the cricoid cartilage. The wound extended transversely across the trachea, so as almost completely to separate it from the larynx. After the injury was inflicted, a tracheotomy tube was inserted by a medical attendant, and retained in position. When admitted to the Ward, a wound was seen in the neck through which a moderate sized tracheotomy tube was passed, on the removal of which a firm cicatrix was found to encircle the opening, and extend laterally for a distance of half an inch. On laryngoscopic examination, the epiglottis was found to be distorted and dragged backwards and downwards, so that it was with considerable difficulty that the larynx was seen. After repeated and careful examination, the interior of that cavity was found to be occupied by a mass of firm cicatricial tissue, which extended from the level of the true cords to that of the tracheotomy wound, a distance of about three-quarters of an inch. Through this mass no passage could be discovered, either by the mirror or with the probe, and even on exertion, no air could be forced through it by the patient. Frequent attempts were made to pass bougies and probes through the stricture, both from above downwards and from below upwards, but without success, until one morning, having made an incision with a laryngeal knife into the upper part of the tissue, as it appeared between the vocal cords, a small sized and sharp pointed laryngeal probe was forced through the stenosed parts and brought out by the tracheotomy wound. To the end of the probe two strands of silk ligature were tied and

dragged upwards through the larynx and mouth, and the two free ends were knotted externally. The following day the ligature was found to have made room for itself, whereas when introduced it completely filled up the opening made through the larynx by the probe. The free ends being untied, to the upper thread four strands of ligature were fixed, so that by dragging upon the lower one these four threads were carried through the mouth and larynx and out through the wound in the neck. By so increasing the thickness of the skein day by day, the larynx was gradually and steadily dilated until the passage was large enough to admit a No. 10 urethral catheter. As this was as much as could be conveniently done in the way of dilatation by means of ligatures and cords, an endeavour was next made to increase the size of the passage by inserting one of Sussdorff's tupelo (*Nyssa*) dilators, commonly used for dilating the os and cervix uteri. One of these, of the diameter of a No. 6 catheter, was introduced into the larynx by fixing the point of the wood dilator to the lower end of a cord which was passed through the mouth, larynx, and tracheotomy wound. By drawing upon this cord with the left hand, and by manipulating the dilator with the right, it was partly pushed and partly dragged into the larynx. Through the lower end of the little piece of tupelo wood a strong ligature was passed, and the tracheotomy tube having been inserted, the lower end of the dilator was firmly tied to its upper or convex surface, and thereby any danger of displacement was obviated. In two days this dilator was removed, and one the size of a No. 12 catheter substituted, and in the course of a week the passage through the larynx was enlarged sufficiently to admit the pharyngeal limb of an artificial larynx, which permitted the patient to breathe by the mouth, and converse in a whisper, or in a loud monotone by the employment of a reed.

The second case is in its etiology, progress, and treatment, almost identical to the one just described. The patient, a man aged 24, was admitted into the Royal Infirmary in April of this year. The history of the case showed that, in September, 1887, the patient inflicted a wound upon his neck with a sharp knife, so as to divide the trachea almost completely from the larynx, and at the same time considerable injury was done to the tissues around. The case was treated as one of cut-throat, and the patient was permitted to breathe through the wound, no tube being inserted till six weeks after the occurrence.

The tracheotomy tube was still retained in position immediately below the cricoid cartilage. Examination of the wound showed that above the level of the tube the larynx was completely stenosed so that no air could pass to the lungs from the mouth or nose, and the patient was unable to speak except in a very faint whisper produced by a vibration of the air in the buccal and nasal cavities.

On laryngoscopic examination the larynx above the level of the vocal cords was found to be perfectly normal, but a quarter of an inch below them the sides of the trachea were seen to meet in the middle line, with a depression in the centre running parallel to the vocal cords when in full adduction. The cords were stationary in the position of complete abduction.

Exactly the same treatment was adopted in this as in the first case. After the stenosed parts had been dilated and an artificial larynx introduced, a laryngoscopic examination was made, when the vocal cords were observed to meet in the middle line, and not to move much apart during inspiration, and on the left cord there was a little erosion about the size of the space occupied by a half barley corn.

The third case was that of a woman, aged 21, who was admitted into the Glasgow Royal Infirmary, suffering from great dyspnoea, for the relief of which tracheotomy was immediately performed. An inquiry into the history of the case showed that about sixteen months previous to admission the patient contracted syphilis, and about seven months subsequent to that time, she developed a cutaneous eruption, and began to suffer from sore throat and loss of voice. On admission the whole of the fauces was seen to be greatly swollen and hyperæmic, but on account of the distressing dyspnoea no examination of the larynx could be made. After tracheotomy was performed the patient breathed freely, and in a few days a satisfactory view of the larynx was obtained, and showed that the entire mucous membrane was thickened, and the parts above the true vocal cords were occupied by a submucous growth, except at the posterior part where a gumma had ruptured, and the mucous membrane was occupied by a large sloughing ulcer. The epiglottis was greatly contorted, and ulcerated on the right side; there was also a perforation of the soft palate. On account of the obstruction the patient was unable to inhale through the larynx even when the tracheotomy tube was closed, but with an effort she sometimes succeeded in forcing a little air upwards through the glottis.

The tracheotomy tube having an opening in its upper or convex aspect, attempts were made to pass tubes and bougies from below upwards, as well as downwards through the mouth. During the course of a month this treatment was carefully and patiently persevered in, but even although some slight improvement was noticed at the time, the parts soon contracted again. At no time was the patient able to inspire more than a small quantity of air through the glottis, nor was she able to speak otherwise than in a feeble whisper.

At this stage of the case it was apparent that no lasting benefit could be had from dilatation by means of bougies alone. A tupelo dilator, the size of a No. 4 urethral catheter, was therefore introduced as described in Case I, and by a gradual process the larynx was dilated sufficiently to admit the little finger, the dilatation was then discontinued, and the patient requested to come to the ward three times a week for the purpose of having bougies passed. Notwithstanding her careful attention to instructions and the regular passage of bougies, the larynx rapidly contracted, so that within a week or ten days the condition of things was no better than formerly. During all this time the tracheotomy tube was retained, and it is needless to mention that the patient was also under constitutional treatment. On account of local irritation, induced by the passage of the bougies, &c., it was deemed advisable to discontinue any attempts at local treatment for a few weeks. After the parts had been restored to quiescence by rest for four weeks, the stenosis had become so complete that the patient was unable to make herself understood, although still a small quantity of air could be forced through the glottis when the tracheotomy tube was closed. No air passed downwards even with forced inspiration. It was therefore very apparent that treatment on the lines formerly pursued was quite inadequate to meet the requirements of the case, and that the only operation which would permit the patient to breathe permanently by the mouth was to dilate the larynx again with a tupelo wood dilator, but instead of trusting to the passage of bougies keeping the passage open, to introduce an artificial larynx. This was done, and the patient is now able to converse freely in a loud whisper; she breathes only by the mouth, and her general health is also greatly improved.

Observations.—The cases have been so fully described that little further requires to be said. The advantage of the mode of treatment adopted in these three cases is sufficiently apparent. When it was found impracticable to

dilate by means of tubes or bougies—a mode of treatment which has been successfully practised in certain forms of laryngeal stenosis—the only alternative offering any prospects of success was to perform thyrotomy, and excise the obstructing tissues. The advisability of resorting to this operation was being seriously considered when the idea suggested itself to attempt dilatation by means of tents. The first method thought of was to introduce tangle tents, but on experimenting with them, it was found that not only was their expansion too rapid, but on account of the friability of the sodden tangle, some difficulty might be met with in extracting it from the larynx. Sponge tents were found to be useless, but Sussdorff's tupelo wood dilators answered admirably. The expansion of the wood takes place by absorption of fluid through its transverse section. On this account the increase in bulk of the tent is slow, and if a ligature be tied round one end of it, the expansion takes place from the free end only, the ligature preventing the inbibition of fluid by the other end, consequently the dilator assumes the form of a solid cone, and may, thereby, be easily extracted. The method of using the tupelo wood tents is as follows:—Tracheotomy having been performed a week or ten days previously, and a large size tracheotomy tube inserted at the time of the operation, the wound in the neck is sufficiently healed to permit the patient, in most cases, to breathe easily after the removal of the tube. In the case of syphilitic stenosis, however, the contraction of the wound took place so rapidly that the tracheotomy tube could not be kept out for more than a couple of minutes at a time, so that the dilator required to be passed upwards through an opening in the convex side of the tube. In most cases, however, the tracheotomy tube may be removed without danger to the patient. This having been done, with the aid of the laryngeal mirror a small sized laryngeal probe should be forced downwards through the stenosed tissue, and brought out through the wound in the neck. To the end of this probe, two strands of silk ligature should be tied, dragged upwards through the larynx and mouth, and the free ends knotted externally, so that a circle of ligature is made, part of which occupies the larynx. The tracheotomy tube is then reinserted. Within the next twenty-four hours the ligature will be found to have swollen by the absorption of saliva, &c., and to have enlarged the opening in the larynx. The thickness of the ligature may then be increased by untying the free ends, and to the upper one four or six strands of silk should be fixed. By waxing the knot well, and compressing it with forceps,

the thicker skein can easily be dragged through the larynx, and made to replace the smaller one, and so on day by day, the size of the passage may be gradually increased—first, by the employment of silk ligatures, and subsequently, by the introduction of hard hemp cords.

When the passage is large enough to admit a No. 10 urethral catheter, a tupelo wood dilator may be inserted. The smallest used is about the size of a No. 4 catheter. The dilators as prepared are about 4 inches in length. The pointed end of the dilator should be dipped in melted wax for the purpose of facilitating introductions, and closing the orifices of the fibro-vascular bundles. A silk ligature should be tightly wound round the point of the tent, and made to pass through it several times, so as to prevent the danger of slipping. One end of the ligature should be tied to the lower end of the cord, which passes through the larynx, while the other end of the ligature should be passed through the dilator about one-eighth of an inch from its lower extremity. The length must be determined by the size of the larynx and the extent of the stenosis. The point of the dilator should pass one-fourth of an inch above the uppermost limit of the constriction, while its lower end should rest upon the convex side of the tracheotomy tube to which it should be tied firmly. In two or three days the tupelo wood will be found to have swollen to its maximum size, so that further dilatation by it is not to be looked for. Larger sizes of dilators should then be substituted until the passage through the larynx is as large as the normal trachea of the individual, then the pharyngeal limb of an artificial larynx should be passed, and retained in position. There is not much danger of over distending the larynx, or of injuring the cartilages by tupelo wood, as moderate pressure from without readily reduces the bulk of the dilator, but while being spongy in this respect, the wood remains tough.

The only question now remaining for consideration is whether those patients, whose cases have just been narrated, must be condemned to wear an artificial larynx during the course of their life, or may something more be done for them? In the case of syphilitic stenosis, the tendency of the cicatricial tissue to contraction is so great that little hope can be entertained of relieving the patient further, but in the other two, after cicatrification is complete an attempt will be made to remove the tubes, and close the opening in the neck.

CURRENT TOPICS.

THE PATHOLOGICAL AND CLINICAL SOCIETY.—Since the last meeting of the Society a considerable alteration has taken place in the *personnel* of its office-bearers, and it will be with no small degree of pleasure that members will see Professor Gairdner once again President of the Society. In the sessions 1873 and 1874 Dr. Gairdner held the chair; so that by many of the younger members, who were not then in the society, Dr. Gairdner's presidency will be hailed with great pleasure. The regular meetings, which take place in the Faculty Hall, will be held as last year on the second Monday of the month, at the usual hour of 8 P.M., and the president's address will be delivered at the first meeting of the Society on the 8th of October.

It is hoped that gentlemen who intend showing specimens or cases, will intimate to the Secretaries their intention of doing so as early as possible, at the latest before the 25th of the month preceding that on which the meeting is to be held, so that the billet of the meeting may be issued in the *Journal* of the current month, and non-members afforded an opportunity of hearing any particular discussion.

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ROYAL INFIRMARY.—OPENING OF THE NURSES' HOME.—The New Home for Nurses was opened on the 31st August, by the Lord Provost, Sir James King, Bart., who is also the Chairman of the Directors. The Managers are to be congratulated on the accommodation they have provided for those nurses who have hitherto required to sleep in rooms off the wards. They have surpassed all previous efforts in this direction, and we would advise those who have not seen it, and who are interested in the improvement of nursing, to visit the Home for themselves. The bedrooms are well proportioned, well ventilated, and simply but nicely furnished; the recreation room is provided with a piano and a library, the gift of friends; and there are bathrooms, boxroom, &c.; on the northern side of the Home a tennis-court, on which the nurses can exercise themselves when off duty, has been laid out. It must be gratifying to Dr. Thomas, the super-

intendent, to see that what he suggested in his report in 1873, has been so well carried out in 1888. This appears a long time to have waited; but the Managers were not idle, as a new laundry, new dispensaries, and a school of medicine, each worthy of the reputation of the Royal Infirmary have all been erected in the interval. The Home is connected with the New Surgical Hospital by means of a glass arcade, which will keep the nurses from being exposed to the inclemency of the weather when going to, or returning from their duty. This arcade will also be used for the patients to exercise themselves in, and will thus prove a valuable adjunct to their treatment. It is provided with garden seats, and, as it is also to be adorned with plants, it will be rendered peculiarly attractive. In the course of a short address, Mr. Hugh Brown, Chairman of the House Committee, narrated what had been done for the nurses in the past, stating that the Home could accommodate 82 nurses, and that they had now altogether single rooms for 120 nurses. A vote of thanks to the Lord Provost closed the proceedings.

GLASGOW HOSPITAL FOR SICK CHILDREN—OPENING OF THE DISPENSARY.—The dispensary in connection with this hospital will be formally opened by the Duke and Duchess of Montrose, on Monday, 1st October, 1888, at 2:30 P.M. Our readers may recollect that the Duchess of Montrose presided over the fancy fair held in Glasgow in 1884, by which a nett sum of £15,763 was handed to the directors for this and other purposes. A description of the building which has been erected for the dispensary, appeared in the *Journal* for July, 1888, and the directors, who have spared neither time nor trouble in the work, are much to be congratulated on the successful result of their labours. The dispensary is in every detail well suited for the out-door treatment of sick children, and altogether is one of the medical charities of which this, the Second City of the Empire, may be justly proud. Situated as it is, in one of the most densely populated and poverty stricken districts of the town, it cannot fail to be of great service to the sick poor; and we are not without hopes that medical students may find it to their advantage to attend the practice of the dispensary.

TABLOID TRITURATES.—We have received from Messrs. Burroughs, Wellcome & Co., a very handy little case full of tubes of these tabloid triturates. Our views as to these

tritutes and of the limits within which they are likely to prove serviceable were given in these pages a few months ago and need not be recapitulated here; but there can be no two opinions as to the "elegance" of the pharmacy displayed in their manufacture. The case in which they are sent out resembles exactly a neat and portable cigarette case.

THE INTERCOLONIAL MEDICAL CONGRESS OF AUSTRALIA.—The Intercolonial Medical Congress, which, as already announced, will assemble in Melbourne in January next, will be a gathering of great importance. It is anticipated that, under the presidency of Mr. T. N. Fitzgerald, about 500 medical men will meet in conference, these including the presidents of the various medical associations throughout Australasia, the medical advisers of the different Governments, the inspectors of asylums in all the colonies, the professors and lecturers in the several medical schools, and a large number of the leading members of the profession. The meetings will be held chiefly, if not wholly, in the University buildings, which the Council, at the instance of the Chancellor, has kindly placed at the disposal of the Executive Committee.

This Committee, the first members of which were appointed by the Medical Associations of Victoria, has been considerably added to, so that it now includes representatives, not merely of these societies, but also of the profession throughout the colony. For the prompt conduct of all the needful arrangements, an Organisation Committee of twelve has been created, a Reception Committee of nine being charged with the promotion of the comfort and entertainment of visitors. After the Inaugural Meeting, to be held on January 7, and at which the President's address will be delivered, the Congress will meet in nine or more different sections. The Section of Medicine will assemble under the presidency of Dr. Mackellar, Examiner in Medicine at the University of Sydney, and formerly Medical Adviser to the Government of New South Wales, who has recently returned from a visit to the old country, and has been enthusiastically *fêted* by his professional brethren in Sydney. The Section of Surgery will be under the guidance of Dr. C. E. Stirling, Surgeon to the Adelaide Hospital, and Lecturer on Physiology in the University of Adelaide. He was Chairman of the Reception Committee at the first session of the Congress in Adelaide in September last. The Chair of the Section of Hygiene, Forensic and State Medicine, will be filled by Dr. H. N.

M'Laurin, Confidential Medical Adviser to the Government of New South Wales, Chairman of the Central Board of Health, and Principal Medical Officer of Port Jackson. The Section of Anatomy and Physiology will be presided over by Professor Anderson Stuart, Dean of the Faculty of Medicine in the University of Sydney, under whose direction the splendid new Medical School is just approaching completion, at a cost, in building and equipment, of £70,000. The Section of Pathology finds its honoured President in Dr. Bancroft, of Brisbane, whose researches in the domain of parasitic diseases have made his name well known in scientific circles throughout the world. Dr. Batchelor, of Dunedin, Lecturer on Midwifery in the University of Otago, will preside over the Section of Obstetrics and Gynaecology, and Dr. Simons, Ophthalmic Surgeon to the Adelaide Hospital, over that for Diseases of the Eye, Ear, and Throat. The important Section of Psychological Medicine is fortunate in having for its head Dr. Manning, the Inspector of Asylums in New South Wales, who is universally acknowledged to be a very eminent authority in this department. The Section of Pharmacology alone will be presided over by a representative of Victoria, the duties of the Chair have been kindly undertaken by Baron von Mueller.

In every section, also, vice-presidents have been appointed, the choice being still confined to the leaders of the profession in other colonies, while the secretaries of the sections and sub-sections, whose task is less grateful and more onerous, have been selected from among the most active workers in the profession in Victoria.

Addresses will be delivered by the presidents of the various sections, and it is understood that the programme will be so arranged that all members may be able to hear them. Their subjects are not announced, but it may be expected that they will be of solid value and full of local colour.

The work of the various sections will be kept as distinct as possible from the ordinary proceedings of medical societies; instead of notes of isolated cases, comprehensive papers on large subjects will be read by men of special mark in the various departments. Already a considerable number of such essays have been promised, and interesting discussions will certainly follow them. If possible, abstracts of the chief papers will be circulated beforehand, and the names of the leaders of debate will be announced.

Great public interest will attach to the Sections of Hygiene and State Medicine, and of Psychological Medicine; for ques-

tions of measureless importance in hygiene present themselves in every direction, and much may be anticipated from a conference in which the medical advisers of all the Governments and the leading exponents of sanitation can compare their experiences and collate their conclusions. In regard to Psychological Medicine, the advent of the Congress cannot but be regarded as fortunate, in view of the proposal of the Government to reorganise the Asylum system of Victoria, and the proceedings of this Section, therefore, will be watched with keen attention.

One of the most important features in the official programme is the proposal to hold general meetings, at which subjects of universal interest will be discussed. Thus, one meeting will be devoted to questions connected with Typhoid Fever, in reference to its causation, the conditions of its spread, its anomalous varieties, its relations to irregular forms of fever which occur from time to time, and its treatment and prevention. At another meeting papers will be submitted on the various aspects of Hydatid Disease, whose prevalence is a peculiarity in Australian Medicine. Then the Climates of Australasia will engage attention in reference to health and disease. An attempt is also being made to bring together a special Congress-Museum of Normal and Pathological Specimens, Apparatus, and Drugs. It is expected that a large volume of transactions will remain as the permanent memorial of the Congress, and in order to mark the interest of the Government in the proceedings, a sum of money to cover the cost of publication has been placed on the Estimates.

An invitation has been forwarded through the Surgeon-General with the Government of India to members of the profession throughout the Presidencies, and the Surgeon-General has kindly undertaken to publish it as widely as possible. Some of the leading authorities in medical science in the United Kingdom and elsewhere have also been promised a cordial welcome if they will favour the Congress with their presence.

Such, then, are the aims of the Executive Committee, and such the organisation by which these are to be accomplished. The fruition will depend on the hearty co-operation of thoughtful members of the medical profession throughout Australasia. Those residing in Victoria will remember that no similar Session can be held in this colony for many years, and it is hoped that no effort will be spared by them to ensure the full success of the Congress, and to secure the greatest possible benefit both to the medical profession and to the public.

The Government of Victoria, through the Premier, has undertaken to show every courtesy in its power to members of the Congress visiting Melbourne, and has promised material assistance in order to secure the success of the Session. As a result of representations made by the Premier, members coming from Europe, America, or India will receive free passes over all Victorian railways; and all members of the Congress will be entitled to return tickets at single fares, available for two months, over all the railways in Australia. Forms of application for such tickets have been supplied by the Railway Department, and may be obtained from the Secretary of the Congress.

Applications have been made to various Shipping Companies with a view to obtain for members of the Congress special rates for passages by sea, and we are glad to report that in every case these requests have been favourably entertained.

The International Exhibition will be open during the Session, and as every portion of the globe will be there represented, it is hoped that the display will not be uninteresting to members of the Congress. The Reception Committee will spare no pains to afford members of the Congress opportunities of meeting together and of visiting places of interest in and about Melbourne.

REVIEWS.

Fever: a Clinical Study. By T. J. MACLAGAN, M.D. London: J. & A. Churchill. 1888.

DR. MACLAGAN has written a very excellent and practical work on fever. His remarks on treatment are especially worthy of perusal.

A large amount of space is devoted to the theory of fever, and the author's statement of the problem and criticisms of the various theories in explanation of the phenomena, are clear and convincing. When he comes to form a theory of his own, Dr. Maclagan has surely got possessed of an idea without considering the facts too closely. He ascribes the main phenomena of fever, not merely to the presence of a poison in the blood, but to the reproduction of the poison. The micro-organisms in the blood consume the nitrogen and water of the body in their active multiplication, and in this way are at

once explained the wasting of the tissues and the excessive excretion of urea. The "increased production of heat," as the author phrases it, is an indirect result of the action of the micro-organisms in the blood, but none the less one of the necessary consequences. But in all this Dr. MacLagan forgets that the phenomena of fever are producible without the presence of micro-organisms in the blood or tissues. The presence of the products of these, that is to say, the existence in the blood of certain abnormal constituents is enough. Fever is producible in animals by injecting putrid fluids from which all the agents of putrefaction have been removed, and in man, surely no one supposes that wound fever is anything more than an evidence of the absorption of the products of septic processes in the wound. When the actual septic micro-organisms find entrance to the blood, we are apt to have something more than a simple wound fever—namely, pyæmic phenomena. In thus adding one to the many theories of fever, we cannot regard the author as at all successful.

Guide to the Health Resorts in Australia, Tasmania, and New Zealand. Edited and Compiled by LUDWIG BRUCK. London: Baillière, Tindall & Cox. 1888.

IN view of the prevailing custom of sending patients to the Antipodes in search of health, it is something to have at hand a complete and apparently accurate account, not only of the climate of the different parts of Australasia, on which the conditions of health renewal so much depend, but also of the special attractions and advantages of many of the individual resorts. In Mr. Bruck's Guide we have first a description of the climate of the various Australasian colonies. This is followed by an alphabetical list of over 200 health resorts in Australia, Tasmania, and New Zealand, giving an account of the natural features of the districts, the special conditions in which their baths, spas, &c., are indicated, analyses of their mineral waters, the names of resident medical men, addresses of hotels and boarding houses, the quickest and cheapest travelling routes, and so on. Then in two short chapters the health resorts and their mineral waters are classified, these being followed by an article, taken chiefly from Dr. Hochstetter's work on "New Zealand," descriptive of the hot spring districts in the northern island of that colony. In the last mentioned chapter the hot lakes and baths and the white and pink terraces are mentioned; but we find no

notice of the effects of the recent volcanic eruptions, which have so considerably transformed the face of nature in these regions.

The information embodied in Mr. Bruck's compilation was obtained from an immense number of sources, largely from resident medical men, so that it may be taken as reliable. As a result we have a "Guide" or directory which will prove of the greatest service both to medical adviser and patient.

Pneumonia: Its Mortality and Treatment. A Statistical and Rational Inquiry. By HENRY HARTSHORNE, M.D. Philadelphia: Wm. J. Dornan. 1888.

THIS interesting paper is reprinted from the Transactions of the College of Physicians of Philadelphia, and contains the conclusions arrived at by Dr. Hartshorne, after a long professional career, as to the treatment of acute diseases as illustrated by pneumonia. After a brief account of the arguments against bleeding, he adduces statistics showing that the mortality of pneumonia has more than doubled since the change of treatment. The cause of this is to be found, not in "change of type," not in a deterioration of the race, not in improved methods of diagnosis, but in faulty treatment. The aim of the paper, therefore, is to encourage a return to the moderate use of bleeding, cathartics, and eliminants, early in the disease, so as to relieve arterial tension and to obviate cardiac failure.

We have little doubt but that Dr. Hartshorne's advice will have weight with many of his professional brethren in America, where he is well known as the author of perhaps the best of the smaller works on the practice of medicine. We would, however, point out that the best results are not to be expected from what he calls the prevalent mode of treatment as opposed to venesection—viz., early stimulation, use of opium from the first, and also quinine, with the occasional use of digitalis, antifebrin, &c. A routine treatment of that kind is not likely to meet with much success.

A Textbook of Pharmacology, Therapeutics, and Materia Medica. By T. LAUDER BRUNTON, M.D., D.Sc., F.R.S. Third Edition. London: Macmillan & Co. 1887.

THIS edition of Dr. Brunton's now very favourably known work differs in few particulars from its predecessors. It is

quite unnecessary to say anything in commendation of this, undoubtedly the best, treatise on the subject in the English language. Perhaps its most interesting feature is to be found in the preface, in which the author defends himself stoutly against the charge of having stolen from the homœopathists, and also falls foul of the whole homœopathic system. This he does with excellent effect, and in a very few pages disposes effectually of the claims of Hahnemann's disciples. In the same preface also some little light is thrown on the process of book-making.

The Extra Pharmacopœia. By WM. MARTINDALE, F.C.S., and W. WYNN WESTCOTT, M.B. Fifth Edition. London: H. K. Lewis. 1888.

WE should say that the possession of this book is quite indispensable to all those who wish to have at hand a ready work of reference on the newer therapeutic agents. It is only three years since the last edition appeared, and yet the number of really valuable drugs introduced in that period is very considerable. Among those described in the present edition are antipyrin, antifebrin, salol, phenacetin, saccharin, and a host of others. The only point we would criticise is the retention of the synopsis of changes in the pharmacopœia in 1885. It is surely time that these were dropped. Every one must long ago have become familiar with them.

Anæmia. By F. P. HENRY, M.D., Professor of Clinical Medicine in Philadelphia Polyclinic. Philadelphia: P. Blakiston, Son & Co. 1887.

THIS little book, which, in the words of its preface, is "the first systematic treatise on anæmia" published in America, has externally all the appearance of a pocket volume of fiction. Although dignified with the name of a systematic treatise, it does not seem to us by any means exhaustive, many subjects being dogmatically dealt with which merited detailed discussion, and others being entirely omitted. It is a readable little volume, and might be of service to those who do not possess a large cyclopædia of medicine; but it is not a work to which we could refer those specially interested in anæmia for help in the many abstruse problems connected with the subject.

Partial Syllabic Lists of the Clinical Morphologies of the Blood, Sputum, Feces, Skin, Urine, Vomitus, Foods, &c., &c.
By EPHRAIM CUTTER, M.D. Harvard, A.M. Yale, LL.D. Iowa,
&c., &c. New York: The Ariston, Broadway. Published
by the Author. 1888.

AMERICA has produced many curiosities; this pamphlet is the most recent that has come under our observation. By the term "morphologies" of the blood, &c., the author means "an account of the forms found in the blood," &c., so that it will be seen that even in his use of words of well known meaning, he differs from his fellows. By the microscopic examination of the blood, sputum, &c., he has satisfied himself that almost all diseases are due to unhealthy alimentation, and that most of them, such as consumption, syphilis, rheumatism, &c., can be recognised long before physical signs or symptoms have manifested themselves; but he does not tell us how. It is needless to say more about this pamphlet. The author is his own publisher, which reminds us of the proverb of the lawyer who had himself for a client.

The Diagnosis and Treatment of Eczema. By TOM ROBINSON, M.D. London: J. & A. Churchill. 1887.

IT is not easy to guess why this little volume was published, notwithstanding the protestations and disclaimers found in its preface. It certainly adds nothing to our knowledge of eczema, nor does it even give an adequate account of our present knowledge of the condition so named. Its literary style also is not to be commended.

Lectures on the Treatment of the Common Diseases of the Skin. By ROBERT M. SIMON, M.D. Birmingham: Cornish Brothers. 1888.

THESE short lectures "were delivered as a post-graduate course" in Birmingham. They discuss pruritus (as a symptom common to many diseases, and often demanding special consideration and treatment), eczema, psoriasis, scabies, acne, and ringworm. Without pretending to set forth anything new, they give a fair practical *résumé* of the treatment of these common diseases. There are a few slips here and there, notably on page 93, where two of the prescriptions are obviously incorrect.

Year-Book of the Scientific and Learned Societies of Great Britain and Ireland. Fifth Annual Issue. London: Charles Griffin & Co. 1888.

THE fact that such a venture as this has reached its fifth year, showing no sign of decrepitude or of failure, is sufficient evidence that it has fulfilled the purposes for which it was originally issued. It proposes to give, and seems really to do so, a list of societies devoted to science in all its branches, together with the names of their office-bearers and the titles of papers and other subjects brought before them during 1887. It thus serves at once as a directory and a record, and cannot fail to be of immense service to all who are interested in scientific work.

The section allotted to medical societies is not the least important in the Year-Book. We notice that of the Glasgow Societies the energetic "Southern" is the only one which sends in a return of papers read during the past session. The other local societies might with advantage follow suit.

ABSTRACTS FROM CURRENT MEDICAL LITERATURE.

MATERIA MEDICA AND THERAPEUTICS.

BY DR. A. NAPIER.

Unofficial Formulary, B. P. C.—At the recent Pharmaceutical Conference the following unofficial formulæ were added to those already published, which will be found in this *Journal*, October, 1887:—

Acetum Ipecacuanhae.

Take of—

Ipecacuanha root, in No. 20 powder,	1 oz.
Acetic acid,	2 fluid oz.
Distilled water, a sufficient quantity.	

Macerate the powder in 1 ounce of the acid for 24 hours, and then pack in a percolator. Mix the remainder of the acid with 10 ounces of distilled water, and percolate with the mixture, continuing the percolation with distilled water until 1 pint of the vinegar is obtained.

Dose.—5 to 40 minims as an expectorant.

Elixir Phosphori.

Take of—

Compound tincture of phosphorus,	4 fluid oz.
Glycerine,	16

Add the tincture to the glycerine, and shake well. This elixir should be preserved from the light. Each fluid drachm contains $\frac{1}{4}$ grain of phosphorus.

Dose.—15 minims to 1 fluid drachm.

Elixir Saccharini.

Take of—	<i>Elixir of Saccharin.</i>
Saccharin,*	480 grains.
Bicarbonate of sodium,	240
Rectified spirit,	2½ fluid oz.
Distilled water, a sufficient quantity.	

Rub the saccharin and bicarbonate of sodium in a mortar, with half a pint of distilled water gradually added. When dissolved, add the spirit, filter, and wash the filter with sufficient distilled water to produce 1 pint of elixir.

Each fluid drachm contains 3 grains of saccharin.

Dose.—5 to 20 minims.

Emulsio Olei Morrhuae, II.

Take of—	<i>Emulsion of Cod Liver Oil.</i>
Cod liver oil,	8 fluid oz.
The yolks of 2 eggs.	
Tragacanth, in powder,	16 grains.
Elixir of saccharin,	1 fluid dram.
Simple tincture of benzoin,	1
Spirit of chloroform;	4 "
Essential oil of bitter almonds,†	8 minims.
Distilled water, sufficient to produce	16 fluid oz.

Measure 5 fluid ounces of the distilled water, place the tragacanth in powder in a dry mortar, and triturate with a little of the cod liver oil; then add the yolks of eggs, and stir briskly, adding water as the mixture thickens. When of a suitable consistency, add the remainder of the oil and water alternately, with constant stirring, avoiding frothing. Transfer to a pint bottle, add the elixir of saccharin, tincture of benzoin, spirit of chloroform, and oil of almonds, previously mixed, shake well, and add distilled water, if necessary, to make the product measure 16 fluid ounces.

Dose.—2 to 8 fluid drachms.

Extractum Tritici Liquidum.

Take of—	<i>Liquid Extract of Triticum.</i>
Triticum,‡ in No. 20 powder,	10 oz.
Rectified spirit,	
Distilled water, } of each a sufficient quantity.	

Moisten the powder with 4 fluid ounces of distilled water, pack in a percolator, and pour boiling distilled water upon it until it is exhausted. Evaporate the percolate to 15 fluid ounces, add to it 5 fluid ounces of rectified spirit, mix, and set aside for forty-eight hours. Then filter the liquid, and add to the filtrate enough of a mixture composed of three fluid parts of distilled water and one of rectified spirit to make the liquid extract measure 1 pint.

Dose.—1 to 6 fluid drachms.

Liquor Ferri Hypophosphitus Fortis.

Take of—	<i>Strong Solution of Hypophosphite of Iron.</i>
Sulphate of iron,	760 grains.
Hypophosphite of barium (containing not less than 95 per cent of Ba. $2(\text{PH}_2\text{O}_2)\text{H}_2\text{O}$),	830 "
Diluted sulphuric acid,	100 minims.
Distilled water,	1 pint.

Put the sulphate of iron with 5 fluid ounces of distilled water in a tall 24-oz. bottle, and shake till dissolved. Dissolve the hypophosphite of barium in the remaining 15 fluid ounces of distilled water, and add slowly to the former

* Benzoyl-sulphonic-imide—a patented preparation.

† The oil distilled from the official bitter almond after the expression of the fixed oil.

‡ The rhizome of *Triticum repens*, Linné, gathered in the spring and deprived of the rootlets.

solution. Shake and add the diluted sulphuric acid; again shake and set aside for two days, then syphon off the clear liquid. Keep it in bottles quite full and in a dark place.

Each fluid drachm contains about 5 grains of hypophosphite of iron. The solution has an acid reaction, and it should not give more than a faint precipitate, if any, with either diluted sulphuric acid, or solution of chloride of bariuin.

Dose.—10 to 30 minimis.

Liquor Hypophosphitum Compositus.

Compound Solution of Hypophosphites.

Syn.—LIQUOR FERRI HYPOPHOSPHITIS COMPOSITUS.

Take of—

Hypophosphite of calcium,	320 grains.
Hypophosphite of sodium,	320 "
Hypophosphite of magnesium,	160 "
Strong solution of hypophosphite of iron,	6 fluid "
Hypophosphorous acid, 30 per cent,	½ fluid oz.
Distilled water, a sufficient quantity.	

Dissolve the hypophosphites of calcium, sodium, and magnesium in 12 fluid ounces of distilled water; add the solution of hypophosphite of iron and the hypophosphorous acid. Filter, and make up to 1 pint by the addition of distilled water.

Each fluid drachm contains about 2 grains each of hypophosphite of sodium and calcium, 1 grain of hypophosphite of magnesium, and 1½ grain of hypophosphite of iron.

Dose.—½ to 2 fluid drachms.

Syrupus Codeinæ.

Syrup of Codeine.

Take of—

Codeine, in powder,	20 grains.
Proof spirit,	1½ fluid oz.
Distilled water,	1½ "
Dissolve and add—	
Syrup, sufficient to produce	1 pint.

Dose.—½ to 2 fluid drachms.

Syrupus Ferri Bromidi.

Syrup of Bromide of Iron.

Take of—

Iron wire, free from oxide,	½ oz.
Bromine,	533 grains.
Refined sugar,	14 oz.
Distilled water, a sufficient quantity.	

Dissolve the sugar in 6 ounces of distilled water, by the heat of a water-bath. Put the iron wire with 4 ounces of distilled water into a glass flask, having a capacity of at least 1 pint, and surround it with cold water. Then add the bromine in successive quantities; shake occasionally until the froth becomes white, and the reaction is complete. Filter the solution into the warm syrup, and add, if necessary, distilled water sufficient to produce 1 pint.

Each fluid drachm contains about 4½ grains of bromide of iron.

Dose.—½ to 1 fluid drachm.

Syrupus Ferri Hypophosphitis.

Take of—

Syrup of Hypophosphite of Iron.

Strong solution of hypophosphite of iron,	4 fluid oz.
Syrup,	16 "

Mix. Each fluid drachm contains about 1 grain of hypophosphite of iron.

Dose.—½ to 2 fluid drachms.

Syrupus Ferri et Quininae Hydrobromatum.*Syrup of the Hydrobromates of Iron and Quinine.*Take of— *Syn.*—**SYRUPUS FERRI BROMIDI CUM QUININA.**

Acid hydrobromate of quinine, 160 grains.

Diluted hydrobromic acid, 1 fluid oz.

Distilled water, 1 "

Mix the diluted hydrobromic acid with the distilled water, and in the mixture dissolve the acid hydrobromate of quinine. Then add—

Syrup of bromide of iron sufficient to produce 1 pint.

Each fluid drachm contains 1 grain of acid hydrobromate of quinine, and about 4 grains of bromide of iron.

Dose.— $\frac{1}{2}$ to 1 fluid drachm.**Syrupus Ferri Quininae et Strychninae Hydrobromatum.***Syrup of the Hydrobromates of Iron, Quinine, and Strychnine.*Take of— *Syn.*—**SYRUPUS FERRI BROMIDI CUM QUININA ET STRYCHNINA.**

Take of—

Strychnine, in powder, 2½ grains.

Acid hydrobromate of quinine, 160 "

Diluted hydrobromic acid, 1 fluid oz.

Distilled water, 1 "

Mix the diluted hydrobromic acid with the water, and in the mixture dissolve the strychnine and acid hydrobromate of quinine, by the aid of a gentle heat. Then add—

Syrup of bromide of iron, sufficient to produce 1 pint.

Each fluid drachm contains $\frac{1}{4}$ grain of strychnine, 1 grain of acid hydrobromate of quinine, and about 4 grains of bromide of iron.Dose.— $\frac{1}{2}$ to 1 fluid drachm.**Syrupus Hypophosphitum Compositus.**Take of— *Compound Syrup of Hypophosphites.*

Quinine (alkaloid), 20 grains.

Strychnine, 1 "

Hypophosphorous acid, 30 per cent, 2 fluid drms.

Strong solution of hypophosphite of iron, 3 fluid oz.

Dissolve and add—

Hypophosphite of calcium, 80 grains.

Hypophosphite of manganese, 40 "

Hypophosphite of potassium, 40 "

Dissolve, filter, and add—

Syrup sufficient to produce 1 pint.

Mix.

Each fluid drachm contains $\frac{1}{16}$ grain of strychnine and $\frac{1}{2}$ grain of quinine.Dose.— $\frac{1}{2}$ to 2 fluid drachms.**Syrupus Ipecacuanhae Aceticus.**Take of— *Acetic Syrup of Ipecacuanha.*

Vinegar of Ipecacuanha, 1 pint.

Refined sugar, 2½ pounds.

Dissolve by the aid of a gentle heat. Specific gravity about 1.33.

Dose.— $\frac{1}{2}$ to 2 fluid drachms.**Liquor Picti Carbonis.**Take of— *Solution of Coal Tar.*

Quillaia bark,* in No. 20 powder, 2 oz.

Rectified spirit, a sufficient quantity.

* *Quillaia Saponaria, Molina.*

Moisten the powder with a suitable quantity of the menstruum and macerate for twenty-four hours in a closed vessel. Then pack in a percolator, and gradually pour rectified spirit upon it until 1 pint of percolate is obtained. To this add—

Prepared coal tar, 4 oz.

Digest at a temperature of 120° F. for two days, allow to become cold, and decant or filter.

Syrupus Pruni Virginianæ.

Take of—

Syrup of Wild Cherry.

Wild cherry bark,* in No. 20 powder, 3 oz.

Refined sugar, in coarse powder, 15 "

Glycerine, 1½ fluid oz.

Distilled water, a sufficient quantity.

Moisten the powder with distilled water, and macerate for twenty-four hours in a closed vessel, then pack it in a percolator, and gradually pour distilled water upon it until 9 fluid ounces of percolate are obtained. Dissolve the sugar in the liquid, by agitation, without heat, add the glycerine, strain, and, if necessary, pour sufficient distilled water over the strainer to produce 1 pint of syrup.

Dose.—½ to 2 fluid drachms.

Tinctura Calendulæ Florum.

Take of—

Tincture of Marigold Flowers.

Marigold flowers,† dried in No. 20 powder, 4 oz.

Proof spirit a sufficient quantity.

Moisten the powder with 8 fluid ounces of the menstruum, and macerate for twenty-four hours. Then pack in a percolator, and gradually pour proof spirit upon it until 1 pint of tincture is obtained.

Dose.—5 to 20 minimis.

Tinctura Capsici Fortior.

Take of—

Stronger Tincture of Capsicum.

Capsicum fruit, in No. 40 powder, 10 oz.

Rectified spirit, a sufficient quantity.

Moisten the powder with a suitable quantity of the menstruum, and macerate for twenty-four hours in a closed vessel. Then pack in a percolator, and gradually pour rectified spirit upon it until 1½ pint of tincture are obtained.

Dose.—1 to 3 minimis. Principally used externally.

Tinctura Euonymi.

Take of—

Tincture of Euonymus.

Euonymus bark,‡ in No. 20 powder, 4 oz.

Rectified spirit, 1 pint.

Moisten the powder with a suitable quantity of the menstruum, and macerate for twenty-four hours; then pack in a percolator, and gradually pour rectified spirit upon it until 1 pint of tincture is obtained.

Dose.—10 to 40 minimis.

Tinctura Phosphori Composita.

Take of—

Compound Tincture of Phosphorus.

Phosphorus, 12 grains.

Chloroform, 2½ fluid oz.

Place in a stoppered bottle, and apply the heat of a water-bath until dissolved. Then add the solution to

Ethylic alcohol, 12½ fluid oz.

* *Prunus serotina*, Ehr. The bark collected in Autumn.

† The florets of *Calendula officinalis*, Linne.

‡ The bark of *Euonymus atropurpureus*, Jacquin.

Shake well. This tincture should be preserved from the light, in accurately stoppered bottles.

Each fluid drachm contains $\frac{1}{6}$ grain of phosphorus.

Dose.—3 to 12 minims.

Unguentum Oleo-Resinæ Capsici.

Take of— *Ointment of Oleo-Resin of Capsicum.*

Oleo-resin of capsicum,*	1	oz.
Yellow wax,	$\frac{1}{2}$	"
Benzooated lard,	4	"

Melt the wax and lard at a low temperature, add the oleo-resin, mix thoroughly, and, if necessary, strain through muslin. Stir until cold.

INSANITY.

BY DR. R. S. STEWART.

Recovery after a Lengthened Duration of Insanity. By J. A. Campbell (*Amer. Jour. Insanity*, July, 1888).—Case I—For nine years had severe periodic attacks of excitement, occurring always at a menstrual period, though not at every period, and for 17 years in all she required asylum treatment. At 47 menstruation ceased. After this she had only one attack of excitement, and from that date recovery was complete—the intellect, contrary to the usual condition in such cases, remaining perfectly intact.

Case II was possessed of fixed delusions for 15 years, and recovery was coincident with, or closely followed, a severe attack of pneumonia.

In Case III the insanity occurred at the climacteric, and was characterised by excitability, auditory hallucinations, and delusions of persecution. Recovery took place after a residence in the asylum of over 14 years, and 3½ years afterwards there were no signs of a relapse.

Paranoia in Relation to Hallucinations of Hearing. By Fisher (*Amer. Jour. Insanity*, July, 1888).—In an analysis of 243 cases of insanity, hallucinations of some kind were found to exist in 63 per cent, hallucinations of hearing being present in 56 per cent. Hallucinations existed in 50 per cent of the cases of mania and general paralysis, and in 91 per cent of melancholia of all kinds; but they were not present in simple melancholia and in *folie circulaire*. Of the total number under consideration, 47 were cases of paranoia, and in every one of these hallucinations existed, and hallucinations of hearing in every case but two. The writer concludes that this constant association of hallucination and delusion in paranoia is more than a mere coincidence; they are essential factors in this form of insanity.

Uncommon Causes of Imbecility. By Fletcher Beach (*Amer. Jour. Insanity*, July, 1888).—The common causes of imbecility are fright, anxiety, or worry of the mother during pregnancy, intemperance, insanity, imbecility, epilepsy, phthisis, and paralysis in the parents or their relations. Of the uncommon causes, syphilis accounts for only $\frac{1}{2}$ per cent. As regards consanguinity, if both parents are healthy and live under favourable conditions, the apparent effects are almost *nil*; neuralgia and excitability in the parents account for 14 out of 637 cases; and deaf-dumbness for only 2.

Multiple Neuritis Associated with Insanity. By Atwood (*Amer. Jour. Insanity*, July, 1888).—Three cases occurring in women, all of middle age. In two there was considerable malarial toxæmia, and in one

* Oleo-resin of Capsicum (United States Pharmacopœia). It is prepared by exhausting capsicum fruit by percolation with ether, distilling off the ether, and pouring the liquid portion of the remainder on a strainer, in order to separate and reject the fatty matter.

of these the paralysis was caused by a poisonous dose of arsenic taken with suicidal intent. The symptoms in all three were similar—numbness, tingling, pain in the extremities, with much tenderness of the nerves and muscles; amyotrophy; abolition of deep reflexes; loss of Faradic excitability; oedema of the feet; no affection of the sphincters. In one case the mental condition was one of melancholia, changing afterwards to excitement with delusions. In the other two cases the insanity was of the excited form, with hallucinations of the senses. In all three cases the tendency was towards mental enfeeblement.

Forty-Second Report of the Commissioners in Lunacy (England and Wales).—The total number of the insane on 1st January, 1888, in England and Wales, was 82,643, an increase of 1,752 during the year. This is considerably in excess of the average annual increase, 1,425, during the previous ten years, but is very largely to be accounted for by, 1st, a diminished recovery rate, and, 2nd, lowered death-rate. The proportion of recoveries to admissions in 1886 was 41·16, and in 1887, 38·56, while the proportion of deaths to the average number resident was in these years 10·03 and 9·56. The outcome of these two factors is *accumulation*, which is estimated to account for over 600 of the 1,752.

During the past four years, 1885-88, the annual increase of males has been considerably greater than that of the females, the proportion in the previous 26 years, 1859-84, being almost always largely the other way.

Twenty-four suicides occurred during the year, fourteen of these being in county and burgh asylums, and although the majority of these occurred in persons suffering from melancholia, it is worthy of note that the list includes one case of recurrent mania, one of delusional mania, one of delusional mania with depression, and one of general paralysis.

Locomotor Ataxia Followed by General Paralysis. By Bullen (*Brain*, April, 1888).—The description of this case is accompanied by a very full account of the autopsy and a commentary on *tabes* and its relation to general paralysis.

A clerk, aged 24, whose father was a very intemperate man, and mother melancholic, was seized with a fit in which he suddenly lost consciousness, and which was followed by partial paralysis of the right limbs, stammering speech, failure of hand-writing, generalised anaesthesia, severe cranial pain, and change in moral character. Three weeks later, on admission, he presented characteristic symptoms of locomotor ataxia, with delusions of exaltation as to his mental powers. The further progress of the case was characterised by gastric and rectal crises, fulgurant pains, refusal of food, twitchings of the right facial muscles, generalised convulsions with elevation of temperature, and the formation of bedsores.

The following were the changes noted in the nervous system:—Slight thickening and congestion of the spinal membranes, atrophy and irregularity of contour of the cord, dense sclerosis of the postero-median and postero-lateral columns, atrophy of the anterior and posterior cornua on one side in the dorsal region, increased vascularity of the whole substance, more marked, however, in the posterior columns and central gray substance, a degree of sclerosis in the lateral columns, and atrophy and degeneration of the nerve cells. Vascular, cellular, and connective tissue alterations were also found in the medulla, basal structures, cranial and peripheral nerves and cerebral cortex.

Spinal Symptoms in General Paralysis of the Insane. By Rouillard (*Gazette des Hôpitaux*, March, 1888).—The subject of this article is chiefly the relation that exists between general paralysis and locomotor ataxia. This relationship is twofold: general paralysis becomes complicated with ataxia, or the ataxia precedes the paralysis. The first is of rare occurrence, the second most frequent, forming the spinal or ascending form of general

paralysis. Of 169 cases of general paralysis quoted by the writer, 32 were characterised by abolition of the knee-jerk; and of 224 cases of *tubes* observed by Fournier, 17 presented psychical symptoms, chiefly those of general paresis. The melancholic or hypochondriacal type of general paralysis is usually associated with *tubes*, the expansive type occurring most frequently in those cases characterised by exaggeration of the patellar tendon reflex. The article indicates very fully the many points of similarity presented by the two diseases in their etiology, symptomatology, mode of onset, and their course and duration.

S U R G E R Y.

BY MR. A. E. MAYLARD.

The Surgical Treatment of Intestinal Obstruction. (From an editorial article in the *Annals of Surgery* for May, 1883).—An interesting discussion upon acute intestinal obstruction, with especial reference to its surgical treatment, took place at the annual meeting of the New York State Medical Society.

Among some of the opinions expressed may be mentioned first that of the desirability of early operative interference. Valuable time is often lost in attempting to determine the exact cause of the obstruction; and the point to be decided in these cases is not where and what the obstruction is, but whether there really is an acute obstruction of such a nature as to require relief by operation.

In the opinion of Dr. Weir, a very long abdominal incision should be made so as to render an examination of the parts as easy and rapid as possible. The necessity for a short operation is well shown by the cases collected by the writer, which give a mortality of 55 per cent in 190 cases in which the operative interference was limited to relieving the obstruction without wounding the bowel; while it rose to 73·3 per cent in 15 cases in which it was necessary to establish an artificial anus after the obstruction had been removed, and to 83·3 per cent in 48 cases in which the gut had to be sutured. In all these cases the true danger lay in the length of the operation not in the yielding of the sutures, for death was caused by sepsis in only 10 per cent of the fatal cases.

As to other methods of treatment, all united in condemning puncture of the gut, because there was great danger that the openings would fail to close, owing to the paralysed state of the wall of the bowel.

A Case of Paralysis of the Forearm from the Use of Esmarch's Band. By Hugo Köbner (*Deutsche Med. Wochenschrift*, 1888, No. 18).—Esmarch's band had been applied to the arm of a man aged 29 years, for an operation to be performed on the elbow-joint. On its removal, the patient was unable to move his wrist-joint, and only to bend his elbow by a very strong endeavour. Sensibility of the skin of the whole forearm had disappeared. It then appeared that the radial, ulnar, and median nerves had been paralysed. The treatment consisted in the use of the Faradic and constant currents, and the result was complete recovery of the parts. On account of such serious consequences, Köbner does not now use the elastic band, except for major operations. Wölfler, in an appended note, likewise relates two cases where paralysis had occurred from the use of Esmarch's band. In both, subsequent recovery took place. He also warns against the too tight constriction of the arm by the elastic band.—(*Centralb. für Chirurg.*, 11th August, 1888.)

Mucous Membrane Grafts. By Wölfler (*Deutsch. für Chirurg.*, XVII. Kongress).—Wölfler reports some cases of mucous membrane trans-

plantation which were as successful in sequel as Thiersch's more widely known transplantings of the epidermis. The mucous membrane was cut into thin strips of one inch to an inch and a half long, and of a third of an inch broad. That taken from young persons grew best. The wound should be three or four days old.

In three cases of impermeable urethral stricture, the cicatrical tissues, together with the urethra, were excised. After three days the continuity of the urethra was restored by transplanted flaps of mucous membrane, and a catheter was left in the bladder to act as a mould for the new canal. The results were highly satisfactory. In other parts of the body the procedure was equally successful.—(*The International Journal of the Medical Sciences*, August, 1888.)

A New Method of Treating Stricture of the Urethra. By J. A. Fort (Paris: Adrien Delahaye and Emile Legrosnier, 1888).—In the form of a small pamphlet, the author exhaustively discusses three methods of dealing with strictures:—1. Treatment by internal urethrotomy. 2. By dilatation with bougies; and 3. By electrolysis. The two former are dealt with in order to show the dangers and difficulties which are frequently met with in these modes of operation, and to better contrast the advantages obtained by using electrolysis. In discussing the third method, the author goes very fully into the subject, and among the many advantages to be obtained by adopting this procedure, the following may be instanced:—It is not painful. It is rapid. No haemorrhage takes place. There is no need of lying in bed. No ill effects follow the operation, and a return of the stricture is rare. So early as 1852 Wertheimber appears to have used electricity in the treatment of stricture. Since that time many additional attempts have been made to extend the practice, and many new instruments have been devised to effect the desired object. Of the latter none appears to have been used with such frequency and success as that invented by Jardin. However, this instrument has its disadvantages, and it is to obviate these that the author has devised the one which he seeks to introduce in the pamphlet before us. The instrument is an extremely simple one. It resembles much a whip, of which the "handle" is a thin gutta-percha tube, and the "lash" a continuation of the same into a filiform extremity. At the junction of the two is a small triangular metal projection, resembling much the small projections seen in Maisonneuve's urethrotome. This is the only metal (platinum) part in contact with the urethra, and it is in direct communication with a thin wire passing through the hollow "handle." The filiform extremity will pass through the narrowest stricture, and the triangular platinum projection following is brought into immediate contact with the constriction. By connecting the wire with the battery the current passes to the platinum, and in from three to five minutes the projection is found to pass on easily past the stricture. The author then proceeds to cite several successful cases. This new instrument the author terms the Urethra-Electrolyser.

Temporary Osteoplastic Resection of the Front Wall of the Pelvis. By Dr. P. Niehans (*Centralbl. für Chirurgie*, 21st July, 1888).—The author has devised this operation for the extra-peritoneal exposure of the bladder and neighbouring parts. The operation is performed as follows:—An incision is carried vertically down in the middle line from a point a couple of inches above the pubis to the symphysis, then around the root of the penis down to the fold between the thigh and the perineum, ending at the upper third or middle of the ascending ramus of the ischium. The skin and subcutaneous tissue being held asunder by retractors so that the wound widely gapes, the soft parts with the periosteum are detached from the body and ramus of the pubis. The symphysis is cut through and the bone divided by means of a chisel. Two fingers are now inserted behind the loosened fragment of bone, to lever it forward and enable the easy separation of connecting structures on the inner side. The bladder is now exposed with the prostate

(in the male), and the commencement of the urethra, also other neighbouring structures. In operating upon the male the testicle has to be enucleated and turned aside.

The author has performed the operation once upon a female patient aged 38 years suffering from a vesico-rectal fistula. By the operation described the bladder opening was sutured and the patient successfully relieved of her trouble. The front wound has given some little trouble from a tendency to bulge of the replaced pubic bone. The operation was performed on the 14th March, 1888; and the report of the case is dated 15th June, so that complete healing could hardly be expected.

The paper is fully illustrated so that the description of the operation is rendered much easier to follow.

Fæcal Fistula. By W. M. Banks (*The Liverpool Medico-Chirurgical Journal*, July, 1888).—The subject of this paper is based upon a successful case treated by the author, and its interest centres rather upon the case itself than upon the few short general remarks which follow. The patient, a woman aged 40, had three years previously symptoms of intestinal obstruction with subsequent formation of fæcal fistula. When she presented herself at the hospital about half a dozen sinuses reaching from the inner end of Poupart's ligament downwards for 4 or 5 inches, were observed on the upper and inner side of the thigh. The treatment adopted consisted in first splitting up the sinuses, which admitted of the aperture through which the fæces escaped being directly examined. It was found that the opening existed at the femoral ring. At a later day the following operation was performed. A vertical incision in the abdominal wall, running parallel to the median line, was carried from a point about 4 inches above Poupart's ligament down to the sinus over the position of the saphenous opening. On opening the abdominal cavity the small intestine was found adherent to the femoral ring. This was carefully dissected off, and the aperture in the bowel, larger than a three-penny bit stitched up. With the exception of one or two slight subsequent complications the patient made an excellent recovery, returning home seven weeks afterwards quite sound.

Besser on the Microbes of Pyæmia and Septicæmia. By V. Idelson (*London Med. Record*, August, 1888).—In the *Vratch*, Nos. 19 and 20, 1888, Dr. L. V. Besser, of St. Petersburg, publishes two very interesting contributions to the bacteriology of pyæmia and septicæmia. The general deductions from Dr. Besser's researches on pyæmia may be condensed as follows:—1. The pathogenic microbes of pyæmia are absolutely identical with those of suppuration. 2. The opinion that a streptococcus pyæmia is characterised by the predominance of purulent gatherings in serous cavities, while a staphylococcal pyæmia is marked by metastatic abscesses in parenchymatous organs, does not find any support in clinical facts. 3. Rosenbach's assertion that pyæmia is caused mainly, if not solely, by the streptococcus is also untenable, since in some of Dr. Besser's cases the staphylococcus alone was present. 4. In a certain proportion of cases the penetration of the pyæmia microbes into the patient's system is favoured by certain predisposing causes. In other cases pyæmia may develop, probably solely by virtue of a great virulence or concentration of the infective or pathogenic principle. 6. A typical pyæmia can be caused in presence of certain favourable conditions, both by the streptococcus and staphylococcus.

Dr. Besser's conclusions from the series of researches upon septicæmia may be briefly given thus:—1. The essential pathogenic agent is the streptococcus alone. 2. Since the streptococcus can very rarely be discovered in the patient's blood (and that apparently only just before death), its virulent products which hopelessly poison the organism seemed to be formed by the microbe at the site of the primary lesion. 3. Of 18 cases reported by Dr. Besser's predecessors, 17 seem to similarly point out that septicæmia cannot arise without the agency of the streptococcus.

The Treatment of Fractures in the Immediate Neighbourhood of Joints by Means of Massage. By A. L. Lapervenche (*Revue de Chirurgie*, 10th May, 1888).—From a brief review of a treatise on the subject we learn that the author advises the treatment of fractures in the proximity of joints by massage, in order to obviate the stiffness which so frequently follows upon complete immobilisation. Massaging the joint causes absorption of the blood and fluid, so that adhesions are prevented from forming. The experiments of von Mosengeil are cited. In these Chinese ink was injected into the hip joints of rabbits, and in those which were massaged rapid absorption was observed to take place. Lapervenche, by autopsies, also showed the rapid diffusion of extravasations of blood following fractures after one, two, or three *séances* of massage.

The author concludes by a description of the method to be adopted in cases of fracture of the radius, fibula, patella, olecranon, and neck of the femur. Every two or three days the part is massaged, and during the interval the limb is kept immovable. The observations which conclude the thesis appear to establish the advantages of the practice.

Books, Pamphlets, &c., Received.

On the Relief of Excessive and Dangerous Tympanites by Puncture of the Abdomen. By John W. Ogle, M.A., M.D. London : J. & A. Churchill. 1888.

A Manual of Nitrous Oxide Anæsthesia. By J. F. W. Silk, M.D. London : J. & A. Churchill. 1888.

A System of Midwifery, including the Diseases of Pregnancy and the Puerperal State. By William Leishman, M.D. Fourth edition. Two Vols. Glasgow : James Maclehose & Sons. 1888.

The Diagnosis and Treatment of Diseases of the Rectum. By Wm. Allingham. Edited and revised, with much additional new matter, by Herbert Wm. Allingham. Fifth edition. London : J. & A. Churchill. 1888.

A Dialogue against the Fever Pestilence. By Wm. Bullen. From the edition of 1578. Edited by Mark W. Bullen and A. H. Bullen. London : Published for the Early English Text Society by N. Trübner & Co. 1888.

The Anatomie of the Bodie of Man. By Thomas Vicary. The edition of 1548. With a life of Vicary, notes on Surgeons in England, &c. Edited by Fredk. J. Furnival, M.A., and Percy Furnival. London : Published for the Early English Text Society by N. Trübner & Co. 1888.

The Prevention of Diseases in Tropical and Sub-Tropical Campaigns. By And. Duncan, M.D. London : J. & A. Churchill. 1888.

A Manual of Ophthalmic Practice. By Chas. Higgins, F.R.C.S.E. With Illustrations. London : H. K. Lewis. 1888.

Elements of Practical Medicine. By Alfred H. Carter, M.D. Fifth edition. London : H. K. Lewis. 1888.

A Directory for the Dissection of the Human Body. By John Cleland, M.D., F.R.S. Third edition. Thoroughly revised by John Yule Mackay, M.D. London : Smith, Elder & Co. 1888.

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ORIGINAL ARTICLES.

BREAKDOWN OF THE PRESENT HOSPITAL SYSTEM
—THE FREEDOM OF THE HOSPITAL CLAIMED.

By J. FRANCIS SUTHERLAND, M.D.,
Surgeon to H.M. Prison, Glasgow.

(Read before the Medico-Chirurgical Society of Glasgow, 5th October, 1888.)

WHEN I was informed by your Secretary that a paper from me would fall to be read on the opening night of the Session, I felt that the subject with which I was most familiar, that of the hospitals, was one likely to be of more than ordinary interest at the present time to all sections of the Society. But the interest is not confined to us. It is a matter not only affecting the profession as represented by the hospital staff, the specialist, and the general practitioner, but one which vitally concerns the general public. For some time past the maintenance and management of our hospitals is a theme that has received a considerable amount of attention in the two largest cities in the kingdom, London and Glasgow. The matter has been discussed in medical societies and in the daily press, by members of the hospital staff, by members of the rank and file of the profession, by editors, by the truest friends and benefactors of the hospitals, by candid friends, *et hoc genus omne* of newspaper critics, some of whom deliver their attack in the open, others from the ambush. I admit that in Glasgow the hospital question has not yet reached the acute stage it has reached in London, where a crisis in hospital management is imminent. It would be a calamity if it did.

I venture to think, however, that if half of our hospital wards—inadequate as they are, even when fully occupied, for the requirements of the community—were closed for want of funds the solution of the problem would be speedy. But it is precisely this warding off of such an evil day as has overtaken the London and other hospitals, by the appeals and devices, some of them of questionable propriety, that prevents our profession and citizens from taking up in earnest the question of hospital reform. It is quite on the cards that the agitation in London, guided by the best friends of the hospitals, may result in the appointment of a Royal Commission. The impartial inquiry of such a body, which cannot possibly do any harm and is likely to do much good, should not be confined to London, but should be extended to the provincial towns, and no effort should be spared to bring Glasgow, Liverpool, Manchester, Birmingham, &c., within the scope of such an inquiry.

From the title of my paper, I am here to endeavour to show from extended investigation, that the hospital system of this country has broken down. So far as I know, no scientific and searching attempt has been made to gauge the hospital wants of a community. The existence of many hospitals is the merest accident, and in consequence in the great centres of population the provision made for the sick poor is miserably inadequate. Nay, more, the system of government or management is antiquated and inefficient, the system of admission too, with few exceptions, is bad, many being "in" who should be "out," or treated in pay wards, and many "out" who should be "in." The privileges of subscribers have something to do with this aspect of the question, but more of this anon. And, finally, the financial position of the hospitals of London, Glasgow, Liverpool, &c., is more or less unsatisfactory in regard to all of them, and when it is borne in mind that this is the case where the provision made is far from adequate, the matter takes a more serious complexion. While it would be too much to expect a unanimity of opinion on all these heads, yet I look for it on some. It will be admitted, I think, that defects are to be looked for in a system that in the main has pursued its course for generations undisturbed by the practised or prenticed hand of the reformer. Perhaps I should not omit to say that a beginning has at length been made in our city in regard to one aspect of hospital reform, and that is the proposal of the authorities of the Sick Children's Hospital to institute an inquiry—not necessarily inquisitorial—into the circumstances of those seeking the benefits of its wards or

dispensary. For this purpose the machinery of the Charity Organization Society, admirably suited for such a purpose, is to be utilised. I think Dr. Erskine and his fellow-workers may claim some credit for this step. But Professor Leishman is asking us to believe too much when he said at the opening of the Dispensary of the Sick Children's Hospital the other day, "that not only were the existing institutions flourishing, but new ones were being established."

I am afraid that there are shadows to this bright picture, and these it will be my duty, in support of my views, to bring into strong relief. Perhaps there could not be a better method of demonstrating the financial weaknesses of the Glasgow hospitals than by a study of the figures in the subjoined table:—

TABLE I.

Voluntary Hospitals.	Ordinary Revenue.	Ordinary Expenditure.	Deficit.	Surplus.	Capital Account.
Royal Infirmary, . . .	£18,671	£23,255	£4,584	...	£125,711
Western Infirmary, . . .	14,246	17,842	3,596	...	46,554
Children's Hospital, . . .	2,040	2,321	281	...	18,850
Eye Infirmary, . . .	2,544	2,805	261	...	...
Ophthalmic Institution, . . .	1,625	1,288	...	£337	1,918
Lying-in Hospital, . . .	1,354	1,584	230	...	252
Lock Hospital, . . .	465	611	146	...	...
Ear Hospital, . . .	334	344	10	...	78
Total, . . .	£41,279	£50,050	£9,108	£337	...

In regard to these I wish to make one or two explanatory comments. A system of hospital finance cannot be considered satisfactory when, year after year, the ordinary expenditure is so much in excess of the ordinary income. These deficiencies are, as a rule, made up by absorbing legacies or bequests left during the year. When these are insufficient, the capital account is operated upon; when in excess, the remainder is added to the Stock or Investment Fund. It is true that, although the hospitals do not pay their way, and as a result have to utilise for current expenses money intended for investment, the capital account in some instances is increasing. But there have been, within the past fourteen years, several occasions when the capital account was operated upon to meet current expenditure. I find that this was the case on five occasions within the past fourteen years in connection with the Royal, and would have been on all occasions in connection

with the Western, had not supplementary funds been twice raised. Then, with regard to the capital fund of such institutions here and elsewhere, it must not be forgotten that the investment made may yield little or nothing. And here let me say that land, from which a large part of the revenues of the principal London hospitals is derived, is not the only investment that has given bad or indifferent returns.

In making these strictures now, I admit that philanthropy has done so much for hospitals in Glasgow that it can lay claim to many healing institutions well equipped for the purpose of alleviating the burdens which a large class in the community, handicapped by disease in the struggle for existence, have to bear. While bearing this tribute to the generosity of our wealthy citizens, past and present, I am satisfied that in cities such as this, where the extremes of wealth and poverty exist side by side, philanthropy has done all that it can reasonably be expected to do in the way of making provision for the sick poor, and that, single handed, it cannot adequately meet the present and prospective wants of that large section of the community placed for a time—be it long or short—*hors de combat* by disease. The present system has had a long trial, and, like other systems that have had their day, having done good as far as its influence would permit, it must be reformed to suit the exigencies of the time. And believing this, it will be my duty and endeavour to show that the time has come for taking a new departure in regard to the administration and maintenance of institutions partaking more of a *national* than a *local* character. As many of you are aware, there does not exist in this country, as in France, a central hospital authority; and the result, as might be expected, is that hospitals have been erected by a spurt of enthusiasm that have afterwards been inadequately supported, and what is even worse, in localities where they were not specially required. There are illustrations on record of well meaning and benevolent people who manage with difficulty to float a hospital, and in course of time leave to their successors, in addition to the hospital, a floating debt. This is only one of many evils arising from the absence of a central representative authority for a district of the country. Without such a body the wants of the community as a whole cannot be known, and adequate provision cannot, in consequence be made for that want. Any one can see the truth of this by a glance at the accompanying hospital chart of some of the principal towns and counties of the United Kingdom and Ireland, or at the subjoined tables containing some striking and suggestive figures.

TABLE II.

	Hospitals.	Beds.	Population, 1887.	Ratio of Beds to Population.
England, . . .	501	27,280	26,745,000	1 to 980
Wales, . . .	17	620	1,455,000	1 to 2,340
Scotland, . . .	46	4,320	4,050,000	1 to 930
Ireland, . . .	86	5,800	5,100,000	1 to 870
Total, . . .	650	38,020	37,350,000	1 to 980

Counties.	Hospitals.	Beds.	Population, 1887.	Ratio of Beds to Population.
ENGLISH.	Lancashire, .	51	3,270	3,700,000
	Yorkshire, .	39	2,240	3,087,000
	Wiltshire, .	6	154	277,130
	Suffolk, .	7	258	382,000
	Northampton, .	2	186	291,500
	Lincoln, .	10	300	502,000
	Durham, .	16	480	938,000
	Dorset, .	9	170	204,400
SCOTCH.	Lanark, .	10	1,306	990,000
	Edinburgh, .	8	1,018	420,000
	Aberdeen, .	6	318	286,760
	Renfrew, .	2	240	281,000
	Perth, .	1	110	138,000

	Hospitals.	Beds.	Population, 1887.	Ratio of Beds to Population.
1. London,	90	10,000	4,200,000	1 to 420
2. Glasgow and Suburbs,	9	1,273	750,000	1 to 590
3. Liverpool and Birkenhead,	19	1,197	693,000	1 to 580
4. Manchester and Salford,	12	957	600,000	1 to 620
5. Birmingham,	8	624	440,000	1 to 700
6. Dublin,	23	2,500	353,000	1 to 140
7. Leeds,	3	336	345,000	1 to 1,020
8. Edinburgh and Leith,	8	1,018	318,000	1 to 312
9. Sheffield,	6	380	316,000	1 to 830
10. Bradford,	3	274	224,500	1 to 820
11. Belfast,	14	580	220,000	1 to 380

I will ask you to bear with me while I devote a little time to an examination, first of all, of the tables, as their appearance in support of my paper implies long wandering through

hospital reports and statistics from all parts of the country—a kind of occupation interesting only to the statistician.

In the United Kingdom and Ireland there are, in round numbers, 650 hospitals, containing something like 38,000 beds, which, for a population of more than 38,000,000, means one bed to every 1,000 of the population. In England and Wales (London excluded) there are 420 hospitals with 17,900 beds, or one to 1,320; in Wales alone, with a population of 1,145,000, there are 17 hospitals with 620 beds, or one to 2,340; in Scotland, with an estimated population of about 4,000,000, there are 46 hospitals with 4,320 beds, or one to 930; in Ireland, 86 hospitals containing 5,800 beds, or one to 870. There are striking anomalies here, but they are intensified when the principal cities and towns are examined and compared. I begin with Dublin, which has the largest hospital accommodation of any city in the kingdom or elsewhere—quite out of all proportion to its own and the wants of the surrounding country for a wide area. In Dublin there are 23 hospitals with 2,500 beds—nearly half of the whole of Ireland—or one to 140 of its population; Edinburgh comes second, with one to 312; Belfast third, with one to 380; London fourth, with one to 420; and so on, decreasing until, of the large cities, Leeds comes last with one to 1,020. Such striking anomalies as these figures reveal could not be—there is nothing to justify them—did a central administrative body exist, whose duty it would be to find out through proper and reliable channels the wants of a community. It is the only great system in the country that I know of which is left to shift for itself as best it can. Other national schemes—such as Education, the care of the Poor, &c., &c.—at one time left to voluntary effort and divided control, are now under *central control*. The care of the sick is a necessity in a sense that none of these is, and on that account I should be inclined to give it a higher place. From a monetary point of view, if from no higher, the subject is one calling for the serious attention of the public, of hospital managers, and of the profession. All the hospitals in the kingdom are maintained at an approximate cost of not less than £1,700,000. The upkeep of the London hospitals alone is said to be £500,000; the Scotch hospitals, £190,000; the Irish, £260,000; and the English, £780,000. These figures are arrived at by putting the annual average cost per bed at £45. This is by no means too high, for it is the fact that in some hospitals it is as high as £100, and in others as low as £35. This wide range of itself furnishes a strong plea for change. An administrative bureau would in this, as in

other departments, bring about something like uniformity, and with that would undoubtedly come, what is much needed, economy. But it would do more. It would see to it that communities had made, what they have not at present, some provision for the sick requiring hospital treatment. No attempt under the present helpless and divided system of management has been made to adjust the number of beds for a district of the country, nor to take the special circumstances of communities into consideration.

Hitherto, in arriving at the requirements of a community, no trustworthy data existed, and no thoroughgoing inquiry has been made. With infectious diseases a beginning has been made, and the central authority in England in this matter—the Local Government Board—acting upon the advice of their medical staff, have fixed the number of beds at 1 per 1,000 of the population; so have the Health Committee of this city, guided by their eminent Medical Officer of Health, Dr. Russell; and so likewise have the Health Committee of Edinburgh, advised by their Convener, Dr. J. A. Russell, and the Medical Officer of Health, Dr. Littlejohn. At Greenock, Dundee, Aberdeen, and elsewhere fever cases are treated, as they are in many English towns, in the general hospitals and workhouses. One can only feel surprised that, with regard to infectious disease, the health authorities of important centres should, at this time of day, adopt such a course. I make this passing allusion to the well considered provision made for infectious disease, as it has a decided bearing on that which should be made to meet the wants of those struck down by diseases other than zymotic—diseases which claim six times as many victims.

Public attention has been forcibly directed of late to the hospital question by the crisis that has overtaken the London hospitals. The critical position in which these hospitals are placed for want of funds to meet current expenditure is intensified by a millstone of debt weighing them down, for which, if some remedy is not found, the result, much to be deplored, will be that half of the wards of the metropolitan hospitals will have to be closed, and the usefulness of institutions *national*—nay, even *cosmopolitan*—in character will be seriously crippled. London provides one bed to every 420 of the population, and if to these be added those of the workhouses, some of them having well equipped infirmaries, one to 250. Now, if these could all be taken advantage of by the removal of existing obstacles, there would be, judging so far from the relatively smaller provision made in Glasgow and elsewhere, sufficient to meet the exigencies of its own vast

population and the large crowd of sufferers coming from the provinces and from every clime of the world. But what of that when on good authority it is stated that nearly half of the wards are closed, and that the aggregate income falls short of the expenditure by £100,000, and that this great deficiency is partly met by selling out stock? This is, in truth, a dismal picture. It shows that philanthropy, with all the varied machinery and agencies set in motion in its interests, has failed to maintain the hospitals free of debt. Various reasons are assigned by those who desire to continue the present state of things. On the one hand it is alleged that the hospitals are giving indoor relief to many who are quite able to pay for it, and of course on such people charity is wasted; while, on the other, that a great part of the funds is wasted by the existence of so many small hospitals with their numerous officials, who have to be maintained from the general funds. I am inclined to think, without the possession of special knowledge, that the first allegation is true to a limited extent, presuming that hospitals exist for the treatment of grave diseases occurring among that vast proportion of the community whose scanty means and limited house accommodation render the treatment of such ailments in their homes quite out of the question. Abuses will exist under the most perfect management; but if the cry must be raised that the charity is robbed of its funds, the general practitioner is being injured, and the people themselves pauperised, then I take leave to say that the dispensaries, whether connected with the hospitals or not, are the institutions against which the attack should mainly be directed. It is well known that advice is given at the dispensaries to people who are well able to pay. It is at these that the enormous and increasing totals boasted of in annual reports receive gratuitous advice. A considerable saving might be effected in this department of the hospital, which would provide at least 7 per cent more of accommodation. I think it may safely be said that whatever the causes contributing to this unfortunate result may be (and they are many), voluntary effort has been tried and found wanting. The state of the London hospitals—which is causing so much anxiety to its friends and benefactors, and for which a remedy must be found if collapse does not take place—has its reflex in the provinces. From the investigations I have made, I consider that, for the provincial hospitals, a radical change is as necessary as any proposed for the London hospitals, for whose desperate condition a desperate remedy is needed—a change involving a new departure in hospital administration.

The picture of the Scotch hospitals is by no means a rosy one. In Scotland there are 17 counties with an aggregate population of 725,000 that have not a single hospital bed. In other 4 counties (Orkney, Ross, Roxburgh, and Stirling), with a population of 305,000 there are 4 hospitals with 87 beds, or one to 3,500; in 9 counties with a population of 1,544,600 there are 22 hospitals with 1,700 beds, or one to 900; Forfar, one to 800; Lanark, one to 760; and Edinburgh, one to 410. For the rest *vide* tables and the hospital chart appended, in which the ratio per 10,000 is diagrammatically represented. There is no reason that I know of to explain these striking anomalies. They dispose of the common belief that if you build hospitals you will always be able to fill them. That argument may be of some value when provision is made for a larger ratio than one to 600, or one to 2,000 of the population.

But how is anything like an approximate ratio to be arrived at? It is an accepted *dictum* of sanitary science that density of population, and sickness, and death, go *pari passu*, and it is, I think, equally true that where there are vast communities with high mortalities, these mortalities indicating more sickness and a shorter mean duration of life, greater hospital provision requires to be made for the sick. This provision does not take cognisance of the high death-rate among infants, amounting to 30 and 40 per cent, as hospitals could not appreciably affect this sad feature in our social life. But if I humbly presume to lay down, without qualification, the doctrine that mortalities in the main should decide hospital accommodation, I would find it difficult to explain why 17 counties in Scotland with a population of three-quarters of a million, and a death-rate of 15 per thousand, should have no hospital accommodation whatever, while 4 other counties with a similar death-rate have only one bed to every 3,500. More difficult still, relying on the application of what I believe to be a sound principle, would it be to account for Glasgow and its suburbs with a death-rate of 27 per thousand or 21 per thousand, if half or so of the large percentage of those dying in infancy be deducted, who could not possibly benefit by hospital treatment, having one bed to 590, while Edinburgh and its suburbs, with a much lower total or partial death-rate, one bed to 312. Similarly Suffolk with one to 1,090, and Durham one to 1,930. The reasons are not far to seek nor difficult to find for those great anomalies, so strikingly illustrated by the chart. I submit that the principle still holds good that hospital accommodation should bear a strict relation to mortalities, but I would not

apply the principle rigidly to every locality, as many localities, more especially in the vicinity of large towns, may for good reasons make their provision in some large city hospital, as they do now. And in the same way it would not be expected that districts of the country, which have at present a certain amount of accommodation should make provision, having a relation to their death-rate, as these, too, would likely agree to send cases requiring surgical interference or obscure medical cases to the city hospital. It has not been proposed by any one, so far as I know, that in consequence of the financial position of our great hospitals, suitable cases from the country should be rejected; yet, bear in mind, all city cases are not, and cannot be relieved. Such an attitude on the part of the hospital authorities towards people coming from rural districts would be harsh and unfeeling, and might give colour to the idea that the cause of rejection was the paucity or absence of contributions. Of course there are noble exceptions to this method of admission by lines and recommendations, notably the Birmingham hospitals, and the Edinburgh Royal Infirmary, to which entrance is only gained by diseases. These institutions hang out *en bas relief*, the grand, far-reaching motto eighteen centuries old, "I was sick and ye visited me, I was a stranger and ye took me in." I do not desire to speak disparagingly of other hospitals when comparing them with those of Birmingham and Edinburgh. The Edinburgh Infirmary is able to take up this—the only true position—in virtue of the richness of its capital fund, made so by many benefactors. But the exceptionally favourable position of one or two large hospitals should not be allowed to stand in the way of reform in regard to other hospitals doing under difficulties a great work, and destined to do greater under a better system. The "subscriber's line" is a great institution in this and other cities. On this point I am able to produce abundance of testimony from the very best sources—from the annual reports, and from statements of medical men on the staff. For instance, the Superintendent of the Western Infirmary writes:—"Accidents and urgent cases are admitted into the Infirmary at any hour and without any line, but ordinary applicants for admission (these I take to be the majority), have to bring a line of recommendation from a qualified subscriber." The same practice is followed at the Children's Hospital, but regarding it Dr. Finlayson writes, "the rule is to admit cases sent in by any medical practitioner, the house surgeon obtaining from some of the Directors the needful 'line.'" This "line" is essential to the system. But

it is not the ideal *entrée* to a great public hospital. You may take it that, if in the course of the year, a number of people suffering from diseases somewhat similar in character and urgency, make application at the same time for admission, those with the "line" succeed, those without it go away crushed down by disappointment. And these are common experiences in towns, where the accommodation is far from adequate, during those periods of the year when sickness most abounds. At times, I need hardly say, there is great competition for the beds. Many are delayed, many are rejected—many of the latter because of an arbitrary standard of fitness, made arbitrary, I wish to believe, for want of room, and yet there are those who do not hesitate to ascribe this arbitrariness to selfish motives and ends.

One is puzzled to know why certain diseases come to have a preference over others, unless it be that the selection entirely rests with the medical examiner, who, with full beds constantly staring him in the face, takes in the more "interesting" cases, and rejects many whose condition could be temporarily improved, the progress of disease in many cases, it may be for a time, arrested, and their present suffering relieved. But the waiting-room examiner is so far fortified in his choice, as at some time or other he has been informed by his superiors that, with certain exceptions, no applicant should be taken in who is not likely to be cured or materially benefited by hospital treatment. The latter part of the instruction gives a wide latitude to the discretionary power of the examining medical officer. The exercise of it requires caution, prudence, and experience. It is a monstrous contention that even people who are not likely to recover, and those who are suffering from advanced or chronic disease, are excluded from an arbitrarily fixed category of disease. For instance, little or no hope of admission is held out to the phthisical applicant, and to others with chronic disease, who would undoubtedly be benefited by hospital treatment. I am by no means sanguine that bequests would be either so numerous or so handsome if the real state of matters were known to philanthropists. But there are exceptions. Who are these? These are they, not in the category, who present themselves armed with a generous and well known subscriber's line. It might be serious to reject such an one, and thus a few who unfortunately have not the diseases pleasing to the hospital authority carved out in some organ of their body, do gain entrance.

I cite Dr. Finlayson again, whose opinion is of much

value, as he is attached to the staff of two city hospitals. He writes that "there are always cases waiting admission, and at times as many as 50 patients (mark to a hospital with 70 beds), whose names appear on the books as anxious for treatment, but not able to obtain admission for want of greater accommodation." I might easily multiply opinions like these. The effect of delay or rejection must recur to your minds. One cannot but deplore the system of admission which occasionally leads to tragic episodes at the very portals of institutions, the sole *raison d'être* of which is the relief of suffering. And is it not too true that many cases of disease drift into hopelessness or become aggravated by delay, that might be combated if our hospitals were adequate and free? In fact, I do not know who is to be most pitied, the man whose name is kept on in the books, or the man who knows his fate in the waiting-room. What becomes of many of those grave cases, not all chronic, although I must say that one cannot admire the scoffing and indifferent manner in which chronic diseases, presenting symptoms that can be alleviated by medical science, are spoken of by hospital authorities, but acute, we are not left in doubt, for on the authority of Dr. Robertson, one of the Physicians to the Infirmary, and Visiting Physician to the Poorhouse, it is on record that "contrary to the general impression the amount of acute diseases, especially organs in the chest, is very large; for very many of the denizens of the lodging-houses, when they are prostrated by illness, have *no means of obtaining subscriber's lines* to the Infiraries which are *necessary for admission into them, and have no resource save the Poorhouse.*" This is straight evidence upon the "line" question by "one who knows." May we not entertain the hope that this "line" will ere long meet the same fate as another "line" in church ritual to which our pious ancestors were deeply attached. By reference to the deaths in the parochial and workhouse hospitals, I shall be able to verify in an unmistakable way Dr. Robertson's candid opinion, and like him reverse the "general impression" about the work done in rated hospitals. From these figures I will have no difficulty in showing not only that chronic, but acute diseases are treated there. That chronic and other genuine cases of disease are not to be cared for in our voluntary hospitals is rather a strange doctrine to hold in a Christian community at this time of day. It is certainly neither the doctrine nor practice of the French, of the Germans, or of the Italians, who make ample provision for all forms of disease. It has struck me, that in Liverpool

and Manchester the workhouse hospitals are doing as great, if not a greater work, than the voluntary hospitals. *Vide Table IV.*

It is even alleged that the well equipped poor-law infirmaries of London apply their resources to meet "accidents and urgent cases" in those densely populated districts of the city where there are miles of streets in which no public hospital exists. The more I look into this question, the more I am convinced that there should, under a better system, be *no difference* between the voluntary and rated hospitals, as both seem to be doing in a large measure much the same kind of work, and yet the entrance to the one is gained by "urgency" and "subscriber's lines," to the other by "orders" granted at the Parish Chambers, subsequent to inquiries made by poor-law officials. In brief, the applicant to the latter becomes a pauper, although he need not necessarily belong to that class, and is registered as such. This is part of our boasted hospital system. This is the point we have reached in regard to our sick at the close of the nineteenth century. It is not creditable. I think the time has come when the Parochial hospital should be divorced from the poorhouse, and be as much part of our hospital system as our infirmaries, &c. I am at a loss to know why little or no regard is had for the feelings of entrants to workhouse hospitals—many of whom belong to the same class, and suffer from the same diseases as those who enter our voluntary hospitals. I am told, on good authority, that a number of registered paupers, by means of "subscriber's lines," find their way into our Infirmaries. In many of the hospitals there is valuable clinical material shut off from the medical students which, if all our hospitals were controlled by a representative board, would be available for teaching purposes.

But if patients are to be received from all parts of the country to occupy whatever accommodation may be provided for them in large centres, it is but fair that these communities, for the individual cannot, should in some way pay for their maintenance, and obviously this can best be done by what are known as Treasury grants. At the present moment Glasgow and suburbs have not sufficient accommodation for their own wants, and I shall continue to think so while 1,000 beds are maintained out of public rates, and a goodly number of the 6,000 people who are compelled to avail themselves of these, have to become paupers. At times there is likewise pressure upon these. And the same is true, even in greater degree, of Liverpool, Birmingham, &c. Glasgow, by means of voluntary hospitals, provides one bed to every 590 of the population

(750,000), and when to these are added the 1,048 in Parochial hospitals, one to 320. But the Glasgow voluntary hospitals really meet the wants of 250,000 people beyond the city and suburbs, and when this is recollected, it does seem strange that by subscriptions and donations mainly given, and by legacies bequeathed by philanthropic citizens, so much should be done for outsiders, while 6,300 sick belonging to the city are being treated annually as paupers, and what is true of Glasgow is true in the English towns. This is matter for serious reflection. These and other anomalies and injustices dealt with can only be rectified by a thorough re-organisation of our hospital system, and by the establishment of a central representative authority. There is thus an odious distinction—a distinction which should not be allowed to continue—between the rated and voluntary hospitals. For, if we take the diseases for which the inmates of both suffer, and in some cases ultimately die, this distinction should not be. Examine the work done in both kinds of hospitals, and at all events in the medical wards, the results as revealed by the mortalities are not so very different. In all 741 died in the four principal voluntary hospitals, 840 in the three poorhouse hospitals. Of pneumonia 66 died in the hospitals, 46 in the workhouses; of valvular disease of the heart 41 and 35; of pleurisy 5 and 4; and of apoplexy 24 and 50 respectively. For information regarding the other 9 typical diseases I refer you to Table IV, which further confirms the view that the difference of the work done in both is after all not so great as we are apt to think.

I now invite your attention to Table V, constructed with the object of giving detailed information regarding all the Glasgow hospitals, rated and voluntary. From it you will see 3,000 beds are available for the treatment of disease, only 1,200 of these being in the eight voluntary hospitals. The daily population of the voluntary hospitals is a little over 1,000; of the rated, over 1,100. To the voluntary hospitals 11,160 are admitted annually; to the rated, 9,417, or 20,577 in all. The upkeep of the former is £56,646; of the latter, £40,128, the total cost amounting to £96,774.

Insufficiency of the Hospitals.—To be able to prove that the hospital provision made in our cities for the sick poor is far from adequate would be to strike the severest blow against the present system, and yet I am sanguine enough on the point to believe that such proof is forthcoming. When I look into the annual reports of our great city hospitals, I find one and all of them, with hardly an exception, deplored the absence of accommodation for necessitous cases seeking entrance. I do not wonder at all at the specific allusions on

TABLE V.

GLASGOW AND SUBURBS.		DAILY POPULATION.			ADMISSIONS DURING YEAR.			Total Expenditure for Year 1887.	
No. of Beds.	Medical.	Surgical.	Total.	Medical.	Surgical.	Total.	Total.	Total.	
1. Royal Infirmary, . . .	542	178	315	493	1,672	2,889	4,777	£25,019	19,841
2. Western Infirmary, . . .	400	195	169	364	1,922	3,594	5,517	19,841	19,841
Total, . . .	942	373	484	857	3,573	4,811	8,371	£44,860	2,590
3. Sick Children's Hospital, . . .	70	...	...	57	219	251	470	5,268	5,268
4. Eye Infirmary, . . .	112	...	...	61	...	...	1,154	464	1,288
5. Ophthalmic Institution, . . .	36	...	...	24	...	...	...	367	1,585
6. Lying-in Hospital, . . .	34	...	...	24	...	...	...	253	611
7. Lock Hospital, . . .	60	...	...	21	...	...	...	57	344
8. Ear Hospital, . . .	12	...	...	8	...	...	...	24	100
Two Small Hospitals, . . .	8	...	...	5	...	...	...	...	...
Total, . . .	1,273	...	...	1,057	...	...	...	11,160	£56,646
<i>Parochial.</i>		<i>GLASGOW HOSPITALS RATE-SUPPORTED</i>			<i>YOUTHFUL HOSPITALS SUPPORTED</i>			<i>Expenditure for Year 1887.</i>	
1. Barnhill, . . .	380	...	...	328	...	...	...	2,570	£6,460*
2. Town's Hospital, . . .	428	...	...	370	...	...	...	2,880	7,400
3. Govan, . . .	240	...	...	100	...	...	...	850	2,000
Total, . . .	1,048	...	...	798	...	...	...	6,300	£16,860
<i>Fever Hospitals.</i>		<i>GLASGOW HOSPITALS RATE-SUPPORTED</i>			<i>YOUTHFUL HOSPITALS SUPPORTED</i>			<i>Expenditure for Year 1887.</i>	
1. Belvidere, . . .	540	...	...	328	...	...	...	2,790	£16,500
2. Govan, . . .	50	...	...	26	...	...	...	171	3,000
3. Knightswood, . . .	100	...	...	175	...	...	...	156	3,768
Total, . . .	690	...	...	371.5	...	...	...	3,117	£23,268
Total Voluntary Hospitals, . . .	1,273	...	...	1,057	...	...	...	11,160	£56,646
Total Rated Hospitals, . . .	1,738	...	...	1,169	...	...	...	8,417	40,128
Grand Total, . . .	3,011	...	...	2,226	...	...	...	20,577	£96,774

* These totals are calculated on data kindly furnished to me by Mr. Motion, Inspector of Poor, Barony Parish.

this point repeatedly made by hospital managers, who—with a full knowledge of hundreds, nay, of thousands, of applicants delayed or rejected annually, with a knowledge which only those intimately connected with hospitals can possess—must feel how inadequate after all is the provision made. Each body of managers make their annual appeal in the same doleful strain. The appeals for increased support are in vain. They fall upon an unheeding public, or perhaps it would be more correct to say upon a subscription harassed public. For is it not too true in this and in other cities that, when big deficits are feared as the financial year closes, the burden generally falls upon those who have already borne their full share? But there is evidence forthcoming of even a more striking character to prove this insufficiency, and that evidence is to be found by a comparison of the deaths occurring in hospitals and the total deaths taking place in the community. To point to the usefulness of our hospitals by the mortality table is, I admit, rather a grim way. But there is no better that I know of, and the amount of sickness in our midst has to be approximately estimated by the number who succumb. In making those comparisons everything is favourable to the hospitals, as no deductions are made—possibly could not well be made—for the proportion of deaths occurring among the 20 to 30 per cent or so of individuals who enter our hospitals coming from localities beyond our large cities and their suburbs. In order to see clearly the inadequacy of hospital accommodation, let me ask you to look somewhat closely into the figures represented in these two tables, or at the coloured bars on the chart.

TABLE III.

Year.		Total Deaths.	1. Deaths in Hospitals.	2. Deaths in Work- house Hospitals.	3. Deaths in Fever Hospitals.	Total Deaths in Institu- tions, 1, 2, & 3.	Total Deaths from Zymotica.
1887	Dundee, .	3,350	176	186	14	371	657
1887	Glasgow, .	12,128	741	840	274	1,881	1,888
1885	Suburbs, .	4,300*	741	840 {	274 { +35 }	1,881 {	*687
	Total, .	16,428					
1887	Liverpool, .	14,006	730	1,604	33	2,366	2,672
1887	Manchester, .	9,876	557	837	165	1,559	1,256
1887	Birmingham, .	8,536	468	600	24	1,162	1,336
1886	Sheffield, .	6,130	171	264	10	445	891
1887	Edinburgh, .	5,097	749	360	83	1,192	789

* From Detailed Report of Registrar-General for 1885.

† 1887-88.

	1. Hospitals.	2. Workhouses.	Total in 1 and 2.	Fever Hospitals.
Glasgow and Suburbs,	4·5 %	5·0 %	9·5 %	1·9 %
Liverpool, . . .	5·2 %	11·4 %	16·6 %	0·23 %
Manchester, . . .	5·6 %	8·4 %	14·0 %	1·6 %
Birmingham, . . .	5·4 %	7·0 %	12·4 %	0·3 %
Sheffield, . . .	2·8 %	4·3 %	7·1 %	0·16 %
Edinburgh, . . .	14·7 %	7·0 %	21·7 %	1·6 %
Dundee, . . .	5·2 %	5·5 %	10·7 %	0·41 %

* Glasgow Fever, 2·2 per cent.

Thus it appears that in Glasgow and suburbs, with a population of nearly three-quarters of a million, 16,500 deaths occur every year. Of these, only 1,881, or 11 per cent, die in the voluntary, workhouse, and fever hospitals, the infirmaries and voluntary, supported hospitals being credited with but 4·5 per cent, or 741, and the poorhouses with 5 per cent, or 840. Or take the case of Liverpool, where 14,000 deaths occur annually: 2,366, or 16·9 per cent, occurred in all the institutions. The hospitals are credited with 5·2 per cent, and the workhouse hospitals with 11·4 per cent. Thus, you see, Liverpool workhouses look after double the number of sick that ours do, and double the number of its own hospitals. I am not surprised at this, for its two Union hospitals are as efficiently equipped in every way as its infirmaries, &c. The same must in justice be said of the Birmingham Union hospital. In Birmingham, of 8,536 deaths, 468, or 5·4 per cent, take place in the hospitals, and 600, or 7 per cent, in the workhouse. In Manchester 15·8 per cent of the deaths occur in the public institutions, 5·6 per cent being in the hospitals, and 8·4 per cent in the workhouses. The meaning of it all amounts to this: that of 50,000 deaths occurring in the four cities referred to, *but 5 per cent* die in our large hospitals; and if from this 1 per cent be deducted as the proportion of deaths occurring among the 20 to 30 per cent and upwards of those coming from beyond the cities and towns referred to in the tables, this deduction being a perfectly fair one, would be credited the hospital with *but 4 per cent* of the total deaths. In Paris something like 20 per cent of the deaths take place in the hospitals.

Before taking leave of the *mortalities*, I would say that a community cannot be said to have done its duty by its sick poor until it has made provision for 20 per cent of all who succumb to disease, by which time it is to be hoped that the hospital and workhouse will be dissociated—the former, where

the buildings are at all up to the sanitary requirements of the day, becoming part of a great hospital system. I do not suppose that any of our poorhouse or union hospitals are so defective in a sanitary sense that they could not be utilised, like the Parisian *hospices*, for the treatment of chronic diseases. This trifling percentage of 5 to the credit of our voluntary hospitals should surely open the eyes of statesmen and social reformers, of hospital managers, of the profession and the public, to the striking deficiency of the hospital accommodation needed for the treatment of grave maladies occurring among that large section of the community whose means, &c., do not admit of treatment at home, and to the further consideration—however disagreeable it may be to many wedded to the present state of things—that philanthropy unsupported by public grants can do little more to meet the ever increasing requirements of the community.

There is another Table (IV) which I have framed, to which I ask your attention, as it still further confirms the views I have already expressed.

From it you will see I have selected a dozen or so of the best known and most typical diseases appearing in the Registrar-General's reports. These figures are valuable as showing how little the hospitals are doing for many of the graver and more common forms of diseases. Take phthisis, a disease whose victims in the long mortality roll is only exceeded by bronchitis. From it 2,111 deaths occur in Glasgow and suburbs, and yet only 70, or 3·3 per cent, die in all the hospitals, rated and voluntary. If there is a disease that afflicts the human race requiring a studied salubrity, careful nursing and dieting, and patience, it is this one; and yet how strikingly small is the provision made for it in this and other communities. The necessity for a phthisical and chest disease hospital for Glasgow is admitted by all—by none more than those who, in virtue of arbitrary hospital regulations, have to turn hundreds of applicants away to endure months, and it may be years, of suffering in comfortless abodes. How long will the absence of such continue to be a reproach to many of our large cities? Glasgow and its suburbs stand in need of it more than any other city, for while Liverpool, with a population nearest that of Glasgow and suburbs, is credited with 1,170 deaths from phthisis, Glasgow and suburbs are over 2,000. Let me select another typical disease from the group tabulated—viz., pneumonia. Of 1,490 deaths, 66, or 4·4 per cent, occurred in the three hospitals. In Liverpool hospitals, the Union not included, 4·9

TABLE IV.—DEATHS IN HOSPITALS AND WORKHOUSES.

DEATHS IN Cancer.	Deaths.	Tuberculosis.	Pneumonia.	Bronchitis.	Respiratory Diseases.	Cardiac Diseases.	Pneumonia.	Hemiplegia and Paraplegia.	Apoplexy.	Ulinary System.	Scrotal, Tables, etc., etc.
Glasgow, . . .	266 191	144 1,335	726 583	2,915 1,538	882 40	1,306 1,490	285 75	269 2,046	266 414	266 359	...
Glasgow and Suburbs, . . .	356 338	173 2,111	912 837	4,259 2,293	1,490 75	—	—	—	327 359	...	...
*Glasgow Hospitals, . . .	30 2	9 70	81 41	108 22	66 5	77 75	77 4	121 46	17 121	24 37	50 50
Glasgow Workhouses (3), . . .	29 6	14 142	79 35	177 92	46 4	—	—	—	30 37	30 50	...
Total in Public and Poor- house Hospitals, . . .	59 8	23 212	160 76	285 114	112 9	198 198	54 54	74 74	60 60	...	...
Liverpool Hospitals, . . .	32 2	... 61	48 35	... 89	23 23	50 50	9 9	56 56	... 17	46 46	43
Liverpool Workhouses, . . .	33 1	... 228	63 63	... 481	286 286	167 167	21 21	158 158	... 18	41 41	9
Total in Liverpool Hospital- and Workhouse, . . .	65 3	... 289	111 111	... 570	309 309	217 217	30 30	214 214	... 35	87 87	52
Liverpool, . . .	314 156	... 1,170	794 794	... 3,410	2,130 2,130	1,017 1,017	60 60	1,720 1,720	... 301	285 285	436
Birmingham, . . .	248 54	105 708	587 100	1,818 1,095	494 494	25 25	838 838	— 347	— 347	— 169	...

* These figures, in so far as they apply to the Western Infirmary, have been calculated on the deaths occurring in the Royal Infirmary. The cause of death does not appear in the annual reports of the Western.

per cent died. Of 2,046 who succumbed to diseases of the nervous system in Glasgow and suburbs, 77, or 3·2 per cent, died in hospital, and 5·9 per cent in the parochial hospitals. In Liverpool hospitals the percentage was also 3·2, in the workhouses 9·1. Of deaths from diseases of the urinary system, the Glasgow hospitals are credited with 15 per cent, and the Liverpool with 16 per cent. But I need not pursue this analysis any further. These figures tell their own tale of some suffering relieved, of much more unrelieved.

This city, mainly to the credit of its Medical Officer of Health and the Health Committee, does better for those struck down with infectious disease. They provide one bed for every 1,000 of the population, and yet the deaths from zymotic disease, 2,500, are only 16 per cent of the total deaths. In the fever hospital of the city at Belvidere, 13 per cent of the deaths from the zymotics occur—that is to say, from a comparison of the deaths from fever, &c., on the one hand, assuming even the proportion of recoveries to be the same, which it is not, being higher, and general diseases on the other, double the provision is made for the treatment of infectious disease. Or to put the matter in another way, the fever hospital treats in proportion as many or even more individuals suffering from the febrile class of disease than the voluntary and parochial hospitals combined do of those suffering from all the other diseases. Following out this comparison it amounts to this, that if hospital managers were to make provision for the treatment of general disease similar to that made by the Health Committee, instead of having 1,000 beds or so at the Royal and Western Infirmarys, and Sick Children's Hospital, there should be something like 3,000. And if to the 1,000 beds in the three hospitals referred to, the 1,000 attached to the three poorhouses were added, 500 more beds would suffice for the wants of a community numbering about 1,000,000, which look to our present hospitals for relief. Under a new hospital *regime*, there is no reason why the three parochial hospitals should not be turned into *hospices* for chronic cases. In finding these opinions on the evidence submitted, I have not lost sight of the important fact that in large cities at least one-half of the deaths under 5 years—from 30 to 40 per cent of the whole—occurred among cases not suited for hospital treatment, and for many of those, and especially most of those under 1 year—something like 24 per cent—no hospital provision requires to be made. But there are other methods of arriving at an approximate estimate of the hospital accommodation required for a community. Perhaps they are not so safe as the Regis-

trar-General's figures, but they are of some value. I refer to house accommodation and rental. From a classification of the houses in Glasgow at last census (1881), I find that 70 per cent of the population, or 354,000, lived in houses of one and two apartments, and if I include the suburbs, which have their hospital wants provided for in the city, the number would not be less than 500,000. And what is true of Glasgow in this respect is in the main true of Liverpool, Birmingham, Manchester, &c. Who inhabit those one-roomed dwellings? The average number is three, but it should not be forgotten to quote the words of our eminent medical officer of health, "that there are thousands of these houses in our large cities which contain 5, 6, and 7 inmates, and hundreds which accommodate from 8 up to 13." Strange and weird as it may seem, it is nevertheless true, that many of these latter will have as much ground space in the cemetery as they have during life in such abodes. What the condition of these dwellings must be in times of severe and prolonged illness I leave you to imagine, for I should not attempt to describe it if I could. The philosopher of Weissnichtwo, looking down from his attic *sanctum* on the beehive below, furnishes a sad picture of the condition of life in a city—a picture which still adapts itself to many of our great cities. He says, "the joyful and the sorrowful are there; men are dying there, children are being born; . . . the mother with streaming hair kneels over her pallid dying infant, . . . all these heaped and huddled together with nothing but a little carpentry and masonry between them." It is for many of the occupants of such houses—little better than *kraals*—that hospitals maintained by voluntary subscriptions should in the main, in their hour of necessity, exist. But not only are such houses unsuited for the treatment of serious illness, but the tenants of them have not the means to provide the comforts which the sick require. An idea of their means may be got from the rent they pay. A system has been adopted in Edinburgh of late, at the suggestion of Dr. Littlejohn, by which the deaths are given according to rental. From a collection of monthly statements that have appeared, I find that 52 per cent of the deaths occur in houses rented under £10, 15·5 per cent being in those under £5, and 36·5 per cent above £5 and under £10. And if this be the record of Edinburgh, what must it be of Glasgow and Liverpool—at least 30 per cent worse. There is thus, between the house accommodation and rental, and the weekly wage, an intimate relation, all of them combined, affording convincing proof to any fair mind of the utter folly

of attempting to treat serious illness under such unfavourable circumstances. And of the truth of this no one is more conscious than the general practitioner himself, who cannot possibly have satisfaction in combating disease against such heavy odds. Without a salubrious bedroom atmosphere, without a modicum of those comforts which are the appanage of the rich, nature and nature's handmaiden, the *vis medicatrix*, struggle in vain against disease.

(To be continued.)

CURRENT TOPICS.

INTRODUCTORY ADDRESS—GLASGOW UNIVERSITY.*

By GEORGE BUCHANAN,
Professor of Clinical Surgery.

THE winter session of the medical classes in connection with Glasgow University was opened with an address by Professor Buchanan. The proceedings took place in the Bute Hall, which was well filled with the students and their friends. Principal Caird occupied the chair, and most of the professors were present.

Professor BUCHANAN, when he arose to address the gathering, was received with continued applause. When silence was obtained Professor Buchanan, in proceeding with his address, said he was going to speak a few minutes, not in dictating to his audience, but in suggesting certain topics for their consideration, and certain topics upon which he thought they might take some action, because they were perhaps aware that probably before the end of this session, for the first time, the students would be recognised by the State as a corporate body in the University. He was going to take up two topics of importance. The first was Free Trade as against Protection; and secondly, some considerations with regard to the curriculum and examination. What had Free Trade and Protection or Monopoly to do with the University, as applied to the study, the teaching, and the practice of medicine? Should the study of medicine be regulated or influ-

* The address was delivered without the use of MS. It appears here in an abridged form, in a report by a shorthand writer, as it would be furnished to a newspaper. Hence the colloquial and sometimes fragmentary style.

enced simply by the principles of Free Trade; and the same with teaching, and the same with practice? He had not the least doubt that all young, generous minds who heard this stated for the first time would say—"Down with Monopoly! Free Trade for all connected with medicine." When he was a student the principles of Free Trade regulated the entrance into the profession. All that a student had to do was to pay his fee, get his name enrolled, and sit on the benches. No questions were asked. He continued to do so till the end of four years, and then he was examined in one day from botany to medicine. He either came out a doctor or not a doctor. In 1860 Free Trade was abolished, and now they were under Protection; and the protection consisted in demanding that the student should pass a preliminary examination before he began his studies. Was this preliminary examination serving the purpose intended? The original idea of a preliminary examination was to secure that a young man should be engaged in some studies preparing him for the special study of medicine, up to the very time he enrolled as a student. But now they passed the preliminary subjects piecemeal, and in many cases left off the really educative subjects as soon as they could pass them—perhaps two or three years before registering as students of medicine. In the preliminary examination there was a great slaughter in mechanics. 204 entries for mechanics, with 101 passes. Why was that? It was easily explained. There was no means in country schools for a young man learning mechanics, and he had to get it up by cramming out of a class book. He thought that with regard to entrance to professional study, mechanics ought to be taken out of the registration subjects. What he held was that a student ought to pass in everything else required for registration; and every student should be compelled to begin his studies in May, not October, and during the first summer he could devote himself to elementary mechanics and physics, and to botany and zoology, and pass in these before the first winter session. In the first winter he should devote his time solely to anatomy and chemistry, which he could do if the ordeal of the examination in botany and zoology, were removed out of the way; while at present during the first winter the examination in botany and zoology was weighing on his mind, which should be free for chemistry and anatomy, especially the latter. Or if the student could afford the time, one whole year might be most usefully spent in mechanics and demonstrations in physics—as well as botany, zoology, and chemistry—as the first medical academic year in Cambridge is arranged. Un-

questionably the time has arrived when the curriculum must be extended to five years—and in the case of those who have had no opportunity to study mechanics and physics, probably to six years—but in order to utilise *their* first year for either botany, zoology, or chemistry, or all, the subject of mechanics might well be included in the first professional examination of a six years' course, instead of registration. The whole subject of the relation of mechanics and physics to medical study requires most careful reconsideration.

Was there any other kind of restriction? What about sex? What about women? The ladies had settled that for themselves in a way that would astonish the audience. Those who had begun already, had proved not only their capacity for the study of medicine, but their capacity for excelling the men. He had a note from Mrs. Garrett Anderson, secretary of the School of Medicine for Women, and in it he found that at the August examination at the University of London in anatomy, physiology, and *materia medica*, there were only 19 passes with honours among candidates from all schools, and of these 10 were women. In anatomy there were 6 who took honours, and of these, 3 were women; in physiology 6 took honours, and 4 of these were women; and in *materia medica* 7 took honours, and of these, 3 were women. More than half of the honours of the University of London in anatomy, physiology, and *materia medica*, were taken by women, as against all comers from all schools. That proved what women could do. These must, however, be regarded as exceptional cases. They were women who had braved public opinion, and who had satisfied themselves by their previous study that they were qualified for what they undertook, and consequently when they were determined to take high honours they did so. He thought it right that women should be encouraged in this profession for the sake of going to India and practising in places to which men were not admitted. In the Zenanas of India was the proper sphere for women.

Professor Buchanan next proceeded to state the question, whether should the teaching of medicine be regulated upon the principle of Free Trade or upon that of Protection? He would say protection for the student, rather than protection for the teacher. In the meantime there was restriction for the teacher, and that restriction was founded upon two totally different principles. The one was that a teacher must belong to a guild, the members of which held the monopoly of educating for its own license; or rather, a member of one of three guilds, which gave a conjoint license; university professors

being also necessarily recognised, as they were the teachers of the great majority of the medical students in Scotland. The other was that the teacher must defer to a tribunal—an impartial tribunal, the University Court—which was entitled to grant the right of teaching to any person who applied, if he satisfied the court that he was qualified to teach. That was the present state of matters.*

The next question was a much more difficult one. In connection with the giving of a Degree, should the teaching be confined to that given within the university, or should it be open to all? At present the teaching for a degree was, in the main, given in the university, but the students had the right to take a portion of it outside. With reference to that, he was of opinion that the permission should be made more liberal than it is. But the very essence of a Scotch degree is that a part of the teaching must be within the university. Many were crying out against this, and demanding that all degrees should be given by examination alone, without reference to any part of it being taken within the university. It is a very curious fact that the university reformers in London—seeing the non-success of the University of London, so far as the wants of the medical profession are concerned—are crying out for the foundation of another university in London on the principle of the Scotch universities, in order if possible to share in the success of our universities, of which they are now so jealous; while reformers in Scotland, even with the example of the University of London before their eyes, are crying out that the Scotch universities should grant degrees to all comers, with the certain result that these universities would share the fate of the University of London.† The degrees of London University being given by examination alone, to any who choose to present themselves, the test, especially with regard to the science subjects, is made so severe that few, except those specially educated for the kind of examination given, can pass the ordeal. Hence, the degree of M.B.London, is the mark of exceptional merit and talent, or at least of a very special course of study, beyond what is required for the diplomas of the Colleges of Physicians and Surgeons. Now, if the same power of granting degrees by examination alone were extended to the Scotch universities, it would be accompanied by a condition that the test should be made analogous to that of

* These remarks apply to Scotland.

† See notice of an amendment to that effect on the second reading of the Universities Bill.

London ; with the result that the Scotch M.B. would be out of the reach of those who now obtain it ; and so the universities would necessarily become schools and graduating centres for a comparatively small number of the medical profession, who could afford the time and cost of preparing for the very special tests to be applied, and would lose touch with the present class of students, who, as graduates, have done such honour to the Scotch universities. By all means liberalise the conditions, but retain, in part at least, the principle which has made our universities what they are.

With regard to the question of Free Trade as against Protection in private practice, he should say almost nothing. In 1860 the Government declared that every practitioner who wished to have his name upon the register should pay five guineas for registration. What have they got for that ? Had they got any protection ? No. There had been no suppression of quackery, as it was called. It is a very delicate and difficult thing to interfere with the freedom of the citizen. If a man prefers to go to a bone-setter or herbalist who does not assume the title of physician or surgeon, and chooses to give him a guinea for his help, not as a fee, but as a gift, no one can interfere with that. Every year or two some unfortunate wretch who has made a mistake is hauled up before the General Council, and his name is taken off the register, but there is no suppression of irregular practice by those not on the register, and it is hardly possible to be done. They had done their best, and they had not very well succeeded. It was for those who are beginning the profession to see if they can do better, and give themselves the protection which had not been yet obtained.

In the next place, Professor Buchanan suggested some alterations in the plan of study. Among the most important was the securing a larger share of a student's time for the most important subject, anatomy. It is the foundation on which rest all the practical branches—and the knowledge of its details must be acquired during student life. As a general statement, it may be said that an increased knowledge of medicine and surgery is gained the longer a man is in practice ; but opportunities for the study of anatomy are few and far between after the battle of life begins—so that, from the time a man gets his degree, his knowledge of the particulars of anatomy begins to get less vivid. In the multiplicity of other studies, it is difficult for a student to find time enough for practical anatomy, but in any rearrangement of the curriculum some more time must be procured for it—even at the

expense of some of the other lectures. Some more time for anatomy will be gained when the duration of the curriculum is lengthened.

Professor Buchanan next maintained that it was a great mistake to postpone the practical observation of injury and disease in the hospital to a late period of the curriculum. This was a very difficult point, but he had no hesitation in saying that, for those who were to get all their medical education in four years, the hospital practice should be taken at the beginning of the second winter, and for those who propose to take a five years' course, it should not be delayed beyond the end of the second winter. Even that time was little enough to be occupied in observing the phases of disease in patients, which was to be the business of their life. Professor Buchanan elaborated this suggestion by some illustrations and arguments, and then continued as follows:—

There is one topic of public interest for which I must crave a few minutes' attention. The subject of affiliation of colleges to the university will be fully considered by the Executive Commission under the Universities Act, and I do not propose to discuss it here; but in Glasgow it has been mixed up with another subject to which I must shortly allude. It has been publicly asserted in the Merchants' House, in the Trades' House, and elsewhere, by men who have no personal knowledge of medical teaching, that the clinical teaching in the Western Infirmary is defective, owing to the large number of students who frequent that hospital. I unhesitatingly assert the contrary. I do not deny the general statement, that a large hospital is likely to have greater facilities for clinical teaching, than a smaller one; but that statement must be taken with some reservation. A hospital with 400 beds and eight clinical teachers, is practically eight hospitals with 50 beds each, and each is essentially a repetition of the other. A hospital with 200 beds and four teachers, is in like manner four hospitals with 50 beds; and so on. Now, as our students are not allowed to wander aimlessly about, or "walk the hospital," as used to be said, but attach themselves, at the beginning of each session, to one teacher and one set of wards—so far as each individual student is concerned, and so far as variety of cases is concerned, it does not matter whether the hospital contains 100 or 800 beds. Each group of 50 is practically identical with the other. When anything unusual in interest occurs in one ward, means are taken to bring it before the students of other wards; but as a rule the occupants of each group of 50 beds, medical or surgical, are suffering from nearly allied diseases. Univer-

sity College Hospital, London, has 200 beds ; King's College, 220 ; Charing Cross, 180 ; Westminster, 215 ; St. Mary's 281—all duly recognised as efficient clinical hospitals ; while the Western Infirmary, Glasgow, has 400 beds.

But it is asserted that the classes in the Western Infirmary are too large, and those in the Royal Infirmary too small—indeed, according to the statement of the managers, are dwindling down to nothing. Now, I have every sympathy with the Royal Infirmary, and regret that its students are falling off ; but if it can be shown that the clinical teaching in the Western Infirmary is as good as that at any other hospital in the kingdom, there is no valid reason why it should be interfered with. So long as the interests of the patients are not injured, the managers of these institutions are mainly concerned with finance. If any legislative enactment could induce students to go to the Royal Infirmary instead of the Western, the result would be to enrich the old-established charity, with its large accumulated capital, at the expense of the newer and poorer.

But it is said the classes of the Western Infirmary are so large, that clinical teaching cannot be efficiently conducted. This has been so often reiterated, that I here protest against it. And I demand that if any one chooses to discuss the subject, he will make himself personally conversant with facts and figures before he makes an assertion. Some two years ago this was first mooted, and since then some of the managers of the Western Infirmary have made it their business to visit the hospital at the teaching hours, and even to be present at some of the clinical classes, with the view of ascertaining on what grounds such insinuations were made ; and I have the authority of the chairman of the House Committee for stating, that the interests of the patients were in no way unfavourably affected, and, so far as he could judge, the clinical teaching was just such as he could think useful. I go further, and assert it will bear comparison with that in any university or school, and I challenge denial. Some time ago Mr. Caldwell, M.P. for the St. Rollox Division of Glasgow, asked me if there was any way he could become personally acquainted with the mode of clinical teaching, about which so much had appeared in the newspapers. I asked him to come to the Western Infirmary any day he chose at 9 A.M. Accordingly one day he came, and I asked him to follow me with the students and take his seat at a clinique. I can with confidence appeal to his experience on that occasion. But on leaving he said to me, " If the

students are not well acquainted with the subject of this morning's practical lesson, I don't think they are capable of being taught," or words to that effect. I declare that before anyone ventures to make a statement on this subject in public, it is his duty to do what the chairman of the Western Infirmary has done. No one is entitled to make any statement till he has, for himself, visited and compared the teaching in the Royal Infirmary, and in Edinburgh, in Aberdeen, and in some of the hospitals in London, with that in the Western Infirmary; and as for me and my colleagues, we would abide the result of a *bona-fide* investigation and report, with great equanimity. It is true that in some sessions, some of the eight classes in the Western Infirmary, contain more students than even the teacher himself would choose if he had the selection, while others contain fewer than the teacher would desire. But it is difficult to see how this could be avoided, so long as the students have the free choice of their teachers. This, however, is in the hands of the students themselves; and, as a matter of fact, if a student is a member of a very large class one session, he is sure to be a member of a smaller class, in one or more of the six courses of clinical teaching, he attends. I do not say that our clinical system is perfect, and I would hail, and would be one of the first to acquiesce in, any well devised scheme for its improvement. And in this the senior students, or better still, the young graduates, who are emancipated from the dread of the final examination, might give valuable hints. But comparing the present system with that in other schools which I have visited, according to my experience it is as good as any, and better than many. I maintain again that if anyone will dispassionately compare the clinical teaching in the Western Infirmary with that in the Royal Infirmary, or any other clinical hospital in Scotland, he will unhesitatingly declare that the charge of defective clinical study in the Western Infirmary is unjustifiable, and wholly without foundation. In corroboration of the above, reference may be made to the official report in 1886 by Drs. Bristowe, Barnes, and Macnamara, on the visitation of Glasgow University, for the General Medical Council. In these remarks no reference is made to the teachers or their clinical assistants and tutors, but some consideration is due to them in estimating the value of clinical instruction.

Gentlemen, I have attempted no eloquence in this address; but I may tell you in confidence, that I have prepared a most eloquent peroration or epilogue, which I have purposely left

at home. "If it be true, that *good wine needs no bush*, 'tis true, that a good *address* needs no epilogue;" and if inferior wine deserves no bush, neither does an inferior address deserve an epilogue; so whether the address has been useful or not, there is no epilogue. "I charge you, O students, to like as much of this *speech* as please you," and I conclude by commanding you to your studies, and wishing you a prosperous session.

OPENING OF THE WINTER SESSION IN THE MEDICAL SCHOOLS OF GLASGOW.—The addresses and speeches delivered at the opening of the medical schools of the city have again, in a prominent manner, drawn the attention of the general public to the new Universities (Scotland) Bill, and to the subject of clinical teaching, which a short time ago was so fully discussed in all its bearings in the daily newspapers. In the course of his address (see page 366) at the University, on the forenoon of Tuesday, 23rd October, 1888, Professor George Buchanan dealt with these questions in an exhaustive and moderate manner, and he raised many points which are well worthy the consideration of those who are directly or indirectly interested in the subject. Referring to the principle of free trade in the teaching of medicine, he said that the only restriction, in the case of the Universities, was that the would-be teacher should defer to an impartial tribunal, the University Court, which would grant him the right, provided he could prove his qualifications, to teach. As regards the licensing bodies, it was essential that the would-be teacher should be the member of a guild, irrespective of his other qualifications. "The only monopoly," said the Professor, "was the guild, which said that no one should be recognised as a teacher for its license unless he was a member of the guild." In the latter part of his address Dr. Buchanan made an able defence of the system of clinical teaching as carried out in the Western Infirmary, but in this part of it he is, perhaps, more open to adverse criticism. There can be little doubt that a teacher with 40 or 50 patients at his command cannot give the same valuable, individual, practical instruction to a class of 120 that he could to a class of 50. Dr. Buchanan seemed rather to shirk this difficulty, it being "difficult to see how this could be avoided so long as the students have the free choice of their teachers." The weak point in the argument was at once laid bare by Mr. William M'Ewen when, at the opening of the Royal Infirmary School, he said that the managers of that institution once had under consideration the advisability of limiting the number of students

attending each teacher to 25, and when he stated that he thought Professor Gairdner was of opinion that 12 was a good number for an individual teacher satisfactorily to manage.

In the Anderson's College Medical School, Professor James Dunlop delivered the opening address on the afternoon of Tuesday, 23rd October, 1888, and the Chairman, Sir John Neilson Cuthbertson, gave some account of the attitude of the College towards the Universities Bill, and pointed out that before very long the Governors hoped to be able to proceed with the building of the New Medical School on the site secured near the gate of the Western Infirmary. For this purpose a sum of £7,500 had already been received, and all that was necessary was to get some £1,500 or £1,600 more, when the contracts would be accepted and the buildings commenced.

The Winter Session of the Royal Infirmary School of Medicine was opened on Thursday, 25th October, 1888, when the Lecturer on Chemistry, Dr. Milne, gave an introductory address on the History of Chemistry. The chair was occupied by Sir James King, Bart., Lord Provost of Glasgow, who, in the course of his remarks, referred to the history of the Infirmary School. He expressed his regret that the Anderson's College authorities had not seen their way to amalgamate with the Royal Infirmary when the University moved westward, because he believed that, had such a union been effected, it would have been a source of strength both to Anderson's College and to the Royal Infirmary. He also referred to the St. Mungo's College Bill, and stated the reasons why he had not seen his way to take any active part in the promotion of that measure. He was of opinion that if what the Infirmary authorities desired could be obtained under a general measure, such as the Universities Bill, it would be much more satisfactory, and would give rise to much less ill-feeling, than if a private Bill had been passed to secure it. Mr. William M'Ewen, in the course of a short speech, pointed out that overtures had been made to the Governors of Anderson's College at the time the University went west, but had come to nothing, so far as union was concerned. He also criticised some of the statements in Professor Buchanan's address, especially those dealing with clinical teaching. The Dispensary Hall, in which the meeting was held, was well filled with students, and there was a good attendance of managers and staff.

**PATHOLOGICAL AND CLINICAL SOCIETY—MEETING II—
FACULTY HALL, 12TH NOVEMBER.**—The following specimens and cases will be shown:—Dr. Rutherford—Microscopic sec-

tions of a scirrhous carcinoma of the tongue. Dr. R. S. Thomson—A large sarcomatous tumour of the chest. Dr. Joseph Coats—A tropical abscess of the liver, also a case of ulceration of the large intestine. Dr. Hector Cameron—A case of excision of the wrist. Dr. J. Lindsay Steven—A specimen of diffuse malignant disease of the stomach in an unusual situation, and involving the entrance of the oesophagus, with clinical notes.

A recent meeting of the Council had under consideration a remit from the Society upon the advisability of having special evenings set apart for the consideration of (1) skin diseases, and (2) healing and healed pathological lesions. It was resolved that the evenings of the 17th December and the 25th February be entirely devoted to the exhibition of rare and interesting cases of skin affections; and that the evenings of the 28th January and the 25th March be similarly given up to the exhibition of specimens illustrative of healing and healed pathological lesions. It was further resolved that gentlemen not members of the Society be asked to submit on these evenings cases or specimens bearing on the particular subject to be discussed; cases that may be or may have been under their observation.

A. ERNEST MAYLARD, *Hon. Sec.*,
4 BERKELEY TERRACE.

J. LINDSAY STEVEN, *Hon. Edit. Sec.*,
34 BERKELEY TERRACE.

UNIVERSITY OF GLASGOW.—The following gentlemen have passed the *first* professional examination for the degrees of M.B. and C.M. :—James Aitken, William H. M. Alexander, William Clachan Allardice, William Anderson, Edward Beck, James Begg, Robert Bishop, Otho Watkin Browne, George Burnside Buchanan, Adam Guthrie Burrell, Allan Cameron, David Birrell Campbell, Niel Campbell, William Clark, Kristnalal Datta, Thomas Divine, John Don, M.A.; William Doyle, William Duncan, James Gray Duncanson, Alfred Ernest Evans, Thomas James Freeman, Hugh Galt, Edwin Arthur Gibson, Wm. Sandilands Harrison, Robert Home Henderson, William Moffat Holmes, William Jackson, Owen Gethin Jones, Peter Alexander Laird, David Laub, Peter Letwitch Lawrence, John William Logie, Robert Alexander Edwards Lowry, Samuel T. M'C. Lowry, Robert Mortimer Malcolm, Robert James Marshall, John Miller, Robert Moir, John Kerr Muir, William Murray, Stuart Macbirnie, Dugald M'Callum, Robert M'Ghie, John M'Gregor, Chas. Hugh M'Iraith, M.A.; Alexander John M'Kechnie, William James M'Kendrick, Alex. Lewis M'Leod, M.A.; Percy George M'Reddie, Robert William Nairn, James Henderson Nairnsmith, Charles O'Neill, William Adam Paterson, Henry Joseph

Rankin, Robt. Currie Robertson, M.A.; William David Ross, Archibald George Sanders, Maurice Tancred Stack, William Steel, George Clark Stewart, George Mervyn Sydenham, Daniel M. Taylor, M.A.; Wm. Risk Thonison, M.A.; James Todd, Ebenezer Turner, William Watson, Alexander White, Thomas Buchanan Whitelaw, William Young.

The following gentlemen have passed the *second* professional examination:—John Adam, John Wilson Adam, Alexander Percy Agnew, James Alexander, John Anderson, Alexander Andrew, James Gordon Bain, James Barr, Thomas Berry, Robert Bell, John Adam Boyd, Arthur Herbert Browne, James Spittal Buchanan, Robert Burns, John Calderwood, James Dick Campbell, John Munro Campbell, Herbert Cane, Archibald Chalmers, James Chalmers, William Clark, Samuel Cockburn, James Cordiner, David Coutts, Robert Davis, George Henry Edington, David H. Fotheringham, M.A.; James Fisher Frew, John Frew, John Gilmour, Albert Alexander Gray, Charles Herbert Hall, Charles Archd. Henderson, James Hill, Anthony Inglis, George Scott Jackson, Gilbert Petgrave Johnson, Daniel Kerr, John Martin Munro Kerr, James Kirkwood, George Lamb, Samuel Robbins Lane, Hugh Lang, Peter Letwitch Lawrence, John Lithgow, David Lloyd, Matthew Lochhead, James Rowatt Logan, James Paul Low, George Agnew Main, Ernest Louis Marsh, John Wilson Mathie, James Nelson Matthews, Robert Alexander Morton, Alex. Goodsir Mowat, M.A.; James Muir, Donald Murray, Archd. M. Gillies Macdonald, David M'Donald, William Dove Macfarlane, Duncan Otto M'Gregor, Hugh Macintyre, Daniel M'Kenzie, Jas. Paterson MacLaren, M.A.; John Norman MacLeod, M.A.; Jas. Gibson M'Naught, M.A.; Peter M'Ritchie, William Alexander Neish, Robert James Nevin, Robert Nichol, James Niven, William Park (Beith), William Park (Kilmarnock), Peter Paterson, Edward Ley Paton, M.A.; John Pollock, Charles Francis Scott, Robert Sharp, Archibald Shaw, William Shearer, Alexander Shiels, John Poynter Small, Alexander Smyth, William Caldwell Steele, Robert Stevenson, James Stirling, Roderick Tate Sutherland, Lewis Dunbar Temple, Sholto Douglas Thomson, William Thos. Merry Wallace, John Watt, Alexander David Wilson, Robert Wilson, Hugh Corbett Taylor Young, James John Taylor Young.

The following gentlemen have passed the *third* professional examination, including, in the cases of those marked with asterisks, the subject of pathology:—*Robert Hillhouse Adam, M.A.; *James Grant Andrew, Charles Bannatyne, Thomas Dun Bertram, *James Boag, John Cunningham Bowie, *Robert Broom, B.Sc.; *John Brown, John Richmond Bryce, *William Bryce, *Leslie Buchanan, William Cairns, John Angus Cameron, John Clarke, *Thomas Connell Craig, *John Crawford, Duncan Davie, *Archibald Fairlie, M.A.; *Alexander Charles Farquharson, Isaac Fletcher, Thomas Forrest, *James Alexander Gentle, James Gilchrist, Walter Groom, Thomas Arthur Haig, Frederick Hare, *Andrew Biggam Houstoun, *James Hudson,

*William Hutchinson, Arthur Jaffray Hutchison, M.A. ; Charles Frederick Laing, John Thomas Brown Laverick, Thomas Brough Law, James Lloyd, *James Livingstone Loudon, Thomas Dryden Moffat, Andrew Moyes, *William Robert Muir, *William Murray, *Anthony M'Call, *Roderick Campbell Macdiarmid, *George Godfrey Macdonald, John Macdonald, Dugald Macdougall, Patrick Frazer Macgregor, *John M'Kie, *Robert M'Lay, *Robert Alexander M'Lay, James Andrews Macpherson, Charles Nicol Macquarie, Robert Alexander Paton, Arthur Alfred Pratt, *Alexander Prentice, *Ferdinand Rees, *Oswald Rees, *Andrew Robertson, William John Robertson, M.A. ; *Douglas Wills Russell, *Robert Steel, M.A. ; Paul Stewart, *John Cockburn Syson, *Andrew Stewart Tindal, *Alexander Watt, *Adam Crawford White, *John Wotherspoon.

ROYAL COLLEGES OF PHYSICIANS AND SURGEONS, EDINBURGH, AND FACULTY OF PHYSICIANS AND SURGEONS, GLASGOW.—The Quarterly Examinations in Edinburgh, for the Triple Qualification, took place in October, with the following results:—

First Examination.—Of 65 candidates, the following 35 passed:—Harvey Francis William de Montmorency, County Carlow; George Edwin Deamer, Lincolnshire; Herbert Blackburn, Manchester; Edward Hawkesworth Hackett, Cork; Daniel Joseph Murphy, Youghal; William Herbert Richardson, Manchester; Henry Ringrose Gore Haynes, Cork; Edward Whitley Allsom, Liverpool; James Philp, Glasgow; Joseph Frederick Campbell, Athlone; George William Johnstone, Edinburgh; Francis Edward Williams, Cheshire; John Finlay Mitchell, County Down; Louis Marie Antoine Enguerrand de la Roche Souvestre, Mauritus; Tasker Spence Keys, County Donegal; Charles Alfred Carmalt Jones, London; Arthur Bailie Francis, Donegal; Robert Reid, Antrim; Michael Donovan, County Cork; Harry Arthur Leonard Howell, Chatham; Philip Francis Evans, Cork; Thomas William Waddell, Demerara; Thomas Lindsay Wilson, Glasgow; Robert Acton, County Cork; Caetano Francisco Britto, Goa; John Archibald Campbell, Inverness; Alexander Geddes Verner, Musselburgh; Robert James Black, County Derry; Thomas Edward Magner, County Cork; Howard Edward Fellowes, Birmingham; John Dawson Evelyn, Eynsford; Arthur Ernest Taylor, Cardiff; Thomas Canning Hunter, Pontypridd; Patrick Larkin, Lurgan; and Walter Fisher, Victoria.

Second Examination.—Of 77 candidates, the following 41 passed:—John Clarke Fenwick, Bishopwearmouth; Robert Emmerson Brown, Durham; Richard Henry Barber, Worcester; George Edwin Deamer, Lincolnshire; Charles Frederick Sixsmith, Cavan; William Patrick Lonergan, Glasgow; Godfrey William Waller de Courcy Baldwin, Tipperary; John Patrick Walsh, Cork; Hugh Ferrers Knyvett, Windsor; James Joseph Foley, Killeagh; Harvey Francis

William de Montmorency, County Carlow ; James Ryan M'Ferran, County Limerick ; Frank Weatherdon Toms, London ; Robert James Collier, Belfast ; George Bridgeford Proctor, Birkenhead ; John Walter Corns, Manchester ; Thomas Finney, Buxton ; James Harvey Martin, Ballynahinch ; Alfred Watson Crooks, Victoria ; Andrew John Douglas Reid, Glasgow ; William Walton Robinson, Chesterfield ; Frederic James Woods, Banbridge ; William Smith, Jamaica ; William Ritchie Main, Lasswade ; Samuel Hickman Davies, Staffordshire ; Richard Snaith Jaques, Scarborough ; Joseph O'Brien, County Tyrone ; Robert Tucker Fallon, Westminster ; George Gunn Sinclair, Hamilton ; James Orr, County Antrim ; Joseph Edmund Jones Pegg, Birmingham ; Hugh Shaw, Enniscorthy ; William Fingland, Wavertree, Liverpool ; William James Anderson, Toronto ; Alfred Henry Cheales, Boston, Lincolnshire ; Frank Haden Noott, Dudley ; John Henry Boland, Dundee ; James Francis Curry, Limerick ; Patrick Aloysious Conran, Cork ; George Astin, Burnley ; and Augustus Lower Paliologus, Calcutta.

Final Examination.—Of 84 candidates, the following 64 passed, and were admitted L.R.C.P.E., L.R.C.S.E., and L.F.P. and S.G. :—
Mrs. Caroline Keith, Waldhof ; Miss Florence Sorby, Sheffield ; George Edwin Deamer, Lincolnshire ; Frederic Fairburn Armytage, Huddersfield ; Miss Mary Susanna Ackworth, London ; Robert Boyle, Glasgow ; Richard Eden Walker, Canada ; William Hamilton Merritt, Canada ; Thomas Warren, Armagh ; Henry Soltan, Exmouth ; Jehangir Jamshedji Carsetji, Bombay ; William Mussen, County Down ; Richard Henry Barber, Worcester ; Edmond William St. Vincent Ryan, Cork ; John Adams, Melbourne ; Hugh William Bailie, County Down ; Robert George Reid, Victoria ; George Ogle Moore, Australia ; Robert Miln Simpson, Ontario ; Charles Edward Salmon, Edinburgh ; Charles M'Leod, Canada ; Frederick Thomas Anderson, India ; Arthur Septimus Thomson, South Shields ; Frederick Naylor Stewart, Newport, Fife ; John Samuel Ledgerwood, County Down ; John Stewart Merrilees, Melbourne ; Richard Patrick Byrne, Cork ; John Stewart Boyd, Renfrewshire ; William Henry Webster, York ; Donald M'Lachlan, Tobermory ; Roger Bernard Burke, Cork ; James Alexander Greig, Edinburgh ; John Ferris, Devonshire ; William Williams, Anglesea ; Francis Malcolm Bovill, London ; Edwin Andrew Cuthbert Hindmarsh, Calcutta ; George Stevens Pope, Madras ; Alfred Moxon, Rugby ; Miss Elizabeth Simpson Mitchell, Canada ; Miss Nettie Ogilvie, Glasgow ; William Armstrong, Manchester ; Charles James Milligan, Belfast ; Ernest Gerald Robert Whitcombe, India ; Percy Walker Thompson, Toronto ; Robert Rudland, Coventry ; Edmund Lereude Chalke, Madras ; John Henry Brice, Warwickshire ; Harold William Kingcombe Read, Devonshire ; William Arnold Passe, Ceylon ; Joseph Henry Wilson, County Cork ; Robert David Prichard, Carnarvonshire ; Edward Orr Harrison, Forfarshire ; John Michael O'Dwyer, Cork ; Charles Lawrence Howe, Lancaster ; Luther Watson,

Huddersfield ; Gwilym Evans, South Wales ; John Henry Carson, County Down ; James William Harbinson, Belfast ; John Robert Mason, Lancashire ; William Thomas Blackledge, Lancashire ; Charles William O'Connor, County Limerick ; Francis Murphy, Cork ; John Hurd Gordon, Birmingham ; George Cormick, Tabriz, Persia.

ROYAL COLLEGE OF SURGEONS, EDINBURGH.—During the October sittings of the examiners the following gentlemen passed the *first* professional examination for the License in Dental Surgery :—John Thomson Craig, Warwickshire ; Frederick Jones, Lancashire ; Edwin Eli Johnson, Lincolnshire ; Henry Mallett, Devonshire ; John C. Macnamara, Cumberland ; John Stewart, Edinburgh ; and Samuel A. Westerton, London ; and the following gentlemen passed the *final* examination, and were admitted L.D.S. Edinburgh : William Gray, Edinburgh ; Edward John Montague Hodgkinson, London ; and Arthur Turner, Aylesbury.

THE FOULIS TRAVELLING SCHOLARSHIP.—The Trustees have awarded this scholarship to Mr. R. M. Buchanan, M.B. C.M., who has already, for original work in the department of pathology, been awarded the John Reid prize. The subject of Mr. Buchanan's previous research was the Pathology of Hodgkin's Disease, and he has now gone to pursue his pathological studies in the laboratory of Professor Weigert, of Frankfort-on-the-Maine.

THE SCOTTISH UNIVERSITIES BILL.—This Bill, which is at present before the House of Commons, is exciting great interest. There seems to be a desire in all quarters that it should become law, and a spirit of conciliation is apparent on the part of those who object to some of its provisions. It is felt on all hands that there is at present a chance of such a Bill passing which may not readily occur again, and there is a corresponding anxiety lest the favourable moment be allowed to pass. The Bill passed the House of Lords in the early part of the session, and it falls to be taken up in the House of Commons during the autumn sitting, which begins on 6th November. It has to pass through all the more important stages, the second reading being down for 8th November.

The points on which the greatest differences of opinion exist are, as to the affiliation clauses, the *personnel* of the Commission to be appointed under the Act, and the question of how far attendance at the classes in the Universities should be necessary for degrees. It is interesting, so far as Glasgow is concerned, to find that the University Council Association, as well

as the Committee of the Council itself, are both at one as to the advisability of getting the Bill passed, and the former Association, although some of its leading spirits object to the constitution of the Commission, has indicated that it will accept the Commission in order to facilitate the passing of the Bill. The General Council of Glasgow University meets on the 31st October, and there seems no reason to doubt that it will endorse the recommendation of its Committee.

It is to be hoped that as Scottish affairs have been so much neglected during the present session, the Government will in this matter allow no dilatory policy to disappoint the hopes of a large part of the Scottish people.

GLASGOW SOUTHERN MEDICAL SOCIETY.—The Annual Dinner of the Glasgow Southern Medical Society was held in the Alexandra Hotel, Bath Street, on 25th October. The President (Dr. Glaister) occupied the chair, and the Vice-President (Dr. Pollok) acted as croupier. Amongst the members present were Professor George Buchanan, Drs. Douglas Reid (Helensburgh), William Macewen, James Morton, T. F. Gilmour (treasurer), James Erskine (secretary), Edward Macmillan, Dougall, Eben. Duncan, Cluckie (Greenock); Carr, Brown, Macpherson, Hamilton, Miller, Dewar, Stuart Nairne, Templeton, Barras, White, Munro. As guests there were present Professor Gairdner, Dr. Montgomerie, &c. The usual loyal and patriotic toasts were proposed by the chairman and duly honoured. The toast of the evening, "Our Society," was also proposed in eloquent terms by Dr. Glaister, and enthusiastically responded to. Professor Gairdner replied on behalf of "Kindred Societies." "The University and Medical Schools of Glasgow," proposed by Dr. Douglas Reid, was replied to by Dr. George Buchanan, who made reference to his recent address at the opening of the winter medical session, and by Dr. Duncan who predicted the union of all the medical schools in Glasgow into one great university. The musical part of the programme was especially enjoyable, and was ably sustained by the President, Drs. Carr, Stuart Nairne, Dewar, Duncan, Munro, and Dougall. The usual votes of thanks concluded the proceedings.

GLASGOW ROYAL INFIRMARY — CONCERTS IN AID OF THE NURSES' TENNIS COURT.—On the 3rd and 4th of October last two concerts were given in the Dispensary Hall, by members of the staff and their friends, to aid in liquidating the debt incurred in laying out the Nurses' Lawn Tennis Court behind

the New Home, which, as was noted in our last issue, was opened by the Lord Provost on the 31st August, 1888. Mr. Hugh Brown, Chairman of the House Committee, stated that the Directors did not feel justified in using the public funds of the hospital for this purpose, but that they gladly joined in with the proposal that the debt incurred in the undertaking should be met in this way, and they cordially gave the undertaking their best support. The concerts were arranged for by Mr. G. A. Clark, one of the resident surgeons, and were in every way most enjoyable; a sum of about £18 was raised for the purpose in view. We need scarcely add that a tennis court in connection with the Nurses' Home of a large general hospital is in every way a most excellent and necessary provision for the comfort and well-being of the nurses. Those who know anything of nursing in our large infirmaries know that if there is one thing more than another from which the nurses are apt to suffer it is from want of sufficient open air exercise. The provision of a tennis court will prove to be one excellent means of helping to counteract this tendency, and we hope that all the nurses will recognise it to be their duty to prevent the evils of prolonged confinement in the wards by indulging in a hearty game at tennis between the hours of duty. We sympathise entirely with the managers in their endeavours to expend the public contributions in the most careful way possible, but we scarcely think that any serious exception would have been taken by any of the subscribers to their utilising a portion of the funds for this very worthy object. Our hospitals could not be carried on without the services of the nurses, and any money expended for the purpose of maintaining the health and strength, and even providing a measure of innocent enjoyment and recreation for those most devoted and earnest benefactors of the public—as those women who give themselves to the arduous, and often very trying duty of attending to the sick in our large hospitals undoubtedly are—will not be thrown away.

THE FATAL ILLNESS OF THE EMPEROR FREDERICK III OF GERMANY.*—When the history of the German Empire in the nineteenth century comes to be written, it will contain no more mournful record than that of the miserable and degrading professional quarrels which raged round the deathbed of the Emperor Frederick III. The spectacle of the monarch, stricken down in the heyday of his strength and at the very

* *The Fatal Illness of Frederick the Noble.* By Sir Morell Mackenzie. London : Sampson Low & Co. 1888.

ascent of his throne, enduring a long and trying illness with uncomplaining endurance and heroic fortitude, is in itself most mournful; but the sadness of the scene is enhanced a thousandfold by the dark and murky thunderclouds of professional jealousy and hate which form the background. Those of our readers who, at the International Congress in London in 1881, saw the Crown Prince of Germany take his place on the platform of St. James's Hall beside the Prince of Wales, and nod familiarly to his fellow-countryman, the great pathologist, Virchow, as he sat in his place among the world renowned leaders of the profession, would not then have been willing to believe that in 1888 the stalwart and manly prince would be gathered to his fathers. Yet so it was written in the eternal decrees, and the German people to-day mourn his untimely death.

The widespread interest and sympathy with which the people of this country, in common with his own subjects, watched the sufferings of the German Emperor, have in a most painful manner been vividly recalled by the action which his physician-in-chief, Sir Morell Mackenzie, has seen fit to pursue. We believe there are few in the profession whose opinion is worth considering who do not think that Sir Morell Mackenzie's reputation has suffered considerably by the course he has adopted, and who do not regret that the great laryngoscopist, by forcing on the general public a work the bulk of which can only be followed and understood by professional readers, has laid himself open to a charge of seizing upon this melancholy national sorrow to blazon forth in the pages of the daily press his name and his fame. In our opinion the proper course would have been for the author either to have maintained a dignified silence, or, if any apology or defence were necessary, to have stated his position calmly and dispassionately to the Royal Society or to one of the medical associations of the metropolis, and to have let the matter rest there. We feel sure that the course which has been followed by his physician is not that which the "august" and "illustrious" patient himself would either have wished or have sanctioned; and we cannot help thinking that in adopting it Sir Morell Mackenzie has proved himself to be somewhat wanting in true loyalty to the memory of the deceased and widely beloved monarch. As regards its style, the book, in our opinion, is in bad taste throughout. The adulation well illustrated in the title, "Frederick the Noble," the use of every opportunity of vaunting the author's pre-eminent skill and the wide extent of his practice, even to the "urgent" patient in

"Barcelona," and the persistent undervaluing of the services and ability of his colleagues, as well as the spiteful manner in which their mistakes are exaggerated, are all features which repel rather than attract the reader. Does Sir Morell Mackenzie expect us to believe that the leading men of the profession in their respective departments in Berlin were so utterly incapable in the practice of their art as he represents them to be, or that, had this been the case, they would have been chosen as the medical advisers of the future ruler of the country? Surely not. We have no desire to enter more fully into detail concerning this most miserable and painful controversy, and would only add that Sir Morell Mackenzie's whole action from beginning to end is rather suggestive of specialism run mad. He objects to receive the opinion of any one not a skilled and professed laryngoscopist, and rejects with contumely the testimony of those who are generally admitted to be so. And yet in his eulogistic defence, and in his position as a throat specialist, he confidently advances his own opinion on the state of the lungs, and even consents to examine microscopic pathological specimens.

In conclusion, we have to say that we quite agree with the opinion expressed in the judicious article contained in the *British Medical Journal* for 20th October, 1888—viz., "This much, however, stands upon record, that in their conclusion from the clinical appearances the German physicians were, from the first, right, and Sir Morell Mackenzie was wrong."

INTERCOLONIAL MEDICAL CONGRESS, MELBOURNE, 1889.—We have received the following further communication in regard to the Congress, from Dr. H. B. Allan, Dean of the Faculty of Medicine of Melbourne University, and General Secretary to the Congress:—

"The Organisation Committee of the Intercolonial Medical Congress of Australasia, will esteem it a great favour if you will give further notice, in your next issue, of the second session which will be held in Melbourne, on 7th January, 1889, and following days.

"On behalf of the Organisation Committee I again promise a very hearty welcome to members of the profession in the United Kingdom who may associate themselves with the Congress.

"The Campagnie des Messageries Maritimes will allow members to travel from Marseilles to Melbourne at 30 per cent below the usual rates, and will provide tickets from London to Marseilles for £5. The agents of the Norddeutscher

Lloyd have recommended their head office to allow a rebate of 20 per cent. For those who desire to travel through America, the San Francisco Mail Company will give tickets from San Francisco to Sydney at 20 per cent below the usual rates. The Steamship Companies, for their own protection, desire members to provide themselves with some document showing that they are medical men *en route* to the Congress.

"On arrival in Melbourne, members will receive free passes over the railways. The Centennial Exhibition will be open, and no more favourable opportunity for visiting Australia could be found."

REVIEWS.

A Book of Verses. By WILLIAM ERNEST HENLEY. London: David Nutt. 1888.

THE correct medical sentiment is so rare in general literature, especially in poetry, that we believe our readers will thank us for directing their attention to a book in which they will find it—Mr. Henley's charming *Book of Verses*. His "rhymes and rhythms" are concerned so largely with scenes which are so familiar to most of us that they stir the imagination with a special force, and call up thoughts and images to which the non-medical mind must of necessity be a stranger.

The first section of the volume describes various phases of life as they presented themselves to a patient in the Old Infirmary of Edinburgh, but there is not a line or a portrait which may not equally apply to similar institutions known (and loved) in the West. Who, for example, does not recognise this picture? Mrs. Martin, of "24," might almost have sat for it.

"STAFF NURSE: OLD STYLE.

" The greater masters of the commonplace,
 Rembrandt and good Sir Walter—only these
 Could paint her all to you : experienced ease,
 And antique liveliness, and ponderous grace ;
 The sweet old roses of her sunken face ;
 The depth and malice of her sly gray eyes ;
 The broad Scots tongue that flatters, scolds, defies ;
 The thick Scots wit that fells you like a mace.

These thirty years has she been nursing here,
 Some of them under SYME, her hero still.
 Much is she worth, and even more is made of her.
 Patients and students hold her very dear.
 The doctors love her, tease her, use her skill.
 They say 'The Chief' himself is half afraid of her."

His portrait of "The Chief" is equally good; if one might guess, it seems like a sketch of one who shed glory on the Royal Infirmarys of both Glasgow and Edinburgh before settling permanently in London:—

" His brow spreads large and placid, and his eye
 Is deep and bright, with steady looks that still.
 Soft lines of tranquil thought his face fulfill—
 His face at once benign, and proud, and shy.
 If envy scout, if ignorance deny,
 His faultless patience, his unyielding will,
 Beautiful gentleness, and splendid skill,
 Innumerable gratitudes reply.
 His wise, rare smile is sweet with certainties,
 And seems in all his patients to compel
 Such love and faith as failure cannot quell.
 We hold him for another Herakles,
 Battling with custom, prejudice, disease,
 As once the son of Zeus with Death and Hell."

Another sonnet, "Before," shows Mr. Henley's muse in a different aspect:—

" Behold me waiting—waiting for the knife.
 A little while, and at a leap I storm
 The thick, sweet mystery of chloroform,
 The drunken dark, the little death-in-life.
 The gods are good to me: I have no wife,
 No innocent child, to think of as I near
 The fateful minute; nothing all-too dear
 Unmans me for my bout of passive strife.
 Yet am I tremulous and a trifle sick,
 And, face to face with chance, I shrink a little:
 My hopes are strong, my will is something weak.
 Here comes the basket? Thank you. I am ready.
 But, gentlemen my porters, life is brittle:
 You carry Cæsar and his fortunes—steady!"

Other portions might easily be quoted, but we have given enough to indicate the quality of Mr. Henley's verse. Those on the "Operation," "After," "Lady Probationer," "Staff

Nurse: New Style," "Clinical," "House Surgeon," "Children: Private Ward," are truthful and fine; his portrait of the "Visitor," "a wee old maid that sweeps the Bridegroom's way," is beautiful. Some of the pieces, it must be said, are a trifle gruesome—the "Casualty," for example, and the "Suicide."

In one respect, Mr. Henley does not maintain the unity of his conception, that these rhymes are written by a patient, inasmuch as he has innumerable ideas and touches which would occur most readily to the surgeon, not to the patient; in another respect he does maintain it, as he deals only with scenes on one side of the "house," the surgical, probably finding it hard to extract poetry out of the pallid faces, propped-up forms, and hacking coughs, which are the common sights and sounds on the "medical side."

Of the remaining pieces here published we would speak with more diffidence. To our mind, the finest is the ballad with the old burthen—

"O, the oak, and the ash, and the bonnie birken tree,
They're all growing green in the old countree."

It ought to be set to good music.

While commending Mr. Henley's book on account of its interest to Scotch professional men, and of its own literary merits (which are not small), we feel bound to say that we favour the author on another ground—out of gratitude for pleasure of the purest kind. A good many years ago, when returning from much wandering to and fro on the earth, and in the happily expectant and yet critical frame of mind so well depicted in Stevenson's "The Scot's Return from Abroad," the writer of this notice beguiled the tedium of a long journey with a number of *The Cornhill*, in which he found these "Hospital Sketches" in their earlier (and perhaps better) form. At such a time, when the heart was soft and impressionable as wax, he felt that he owed much to the man who could, with a few deft strokes, touch him so nearly and recall old and happy hospital times so vividly.

Handbook of Diseases of the Eye. By HENRY R. SWANZY, Surgeon to the National Eye and Ear Hospital, Dublin. London: H. K. Lewis. 1888.

THE author tells us that this book is intended for "students attending an Ophthalmic Hospital," and we are quite of

opinion that it is well adapted to the requirements of students. In the main, we may state that the volume before us is excellent; indeed, we reckon it as one of the best of the smaller manuals in our language. It is very evidently the work of a practitioner who has a wide and accurate knowledge of his subject, and an extensive practical experience.

Dr. Swanzy warns the student in his preface that a handbook should only be an aid to, and not a substitute for, clinical study. This sentiment we heartily endorse, but we venture to think that perhaps an error has been made in making this book more of an aid than a text book. In our opinion there is a little too much of the "grind," and scarcely enough of the treatise. No doubt this objection is greatly lessened when the instruction given in the manual is supplemented by the oral teaching and demonstrations of a competent teacher. Provided a student is under a good instructor, he will find this book most useful in recalling to his memory such facts as he may have learned clinically. There seems, however, to us, in many places to be too little illustration and discussion of the subjects treated, and too great an attempt to lay down hard and fast rules. Thus, in speaking of lenses, the whole knowledge which a student is supposed to require as regards conjugate foci, is contained in a very few lines. We think that what is given is not sufficient, and that there should have been more examples to illustrate the constant relationship between conjugate foci. No doubt what is stated is perfectly true, but we are of opinion that it is not full enough. The same remark also holds true for most other sections of the book. Thus, the important subject of nævi of the eyelids is dismissed in some six or seven lines. We are told that the smaller tumours may be destroyed by touching with nitrate of silver or hydrochloric acid; and that "larger tumours may be ligatured, or treated with the galvano-cautery, and electrolysis is a very effectual method in many cases." To a student who has had the advantage of attending Mr. Swanzy's clinic, and of observing which method he employs in the different kinds of nævi, no doubt such a paragraph may be sufficient to bring to his remembrance the methods he has seen employed. We venture to think, however, that a text book should contain fuller indications as to the special method to be employed in a particular case, and also some instruction as to how the method selected is to be carried out. While making these remarks, it is, however, only fair to state that such operations as may be regarded as more strictly ophthalmic, receive much more attention, and indeed are very well described. The section dealing with cataract

extraction is admirable, and all that could be desired in a manual of this size.

On two important subjects we think this book contains very much fuller information than any other small manual; we refer to the chapter on the movements of the pupil, and to that on amblyopia and amaurosis. These chapters are well written, and contain all the essential and more recent information. Moreover, the numerous bibliographical references make them of considerable value to physicians and senior students. It is not often that we find such full information in small text books of ophthalmology. Affections of the orbital muscles are also carefully described. We would, however, have been more satisfied with a more detailed account of errors in the amplitude of convergence, and of the relation which ought to exist between the amplitude of convergence and the near and remote points of distinct vision. There is no more frequent cause of obscure and persistent asthenopia than an error in convergence or divergence, and such conditions cannot be too strongly brought before the student's mind. In many cases it is half the battle in dealing with myopia.

The book, however, is in the main first class, and we again cordially recommend it to students. We have noticed few errors, or rather none, which would mislead a student. Still, however, we think that at page 45, in the last example given on that page, we would have advised the student not only to correct the hypermetropic meridian for reading, but to over correct it so as to make it as myopic as the other. By so doing all effort of the accommodation will be absent in reading or in writing. We are not quite at one with the author at page 270, where he says, "It may be, then, that degeneration of the intra-ocular blood-vessels is the missing link between nephritis and disease of the carotid on the one hand, and cataract on the other." We would respectfully remark that in the first place, there are numerous cases of chronic nephritis in which the lens is perfectly clear. Again, we have not seen any case of chronic nephritis in which the retina or its vessels were not affected in some form or other. Lastly, we have many cases of cataract in which no evidence could be found apart from the cataract of nephritis, acute or chronic. To us, then, the cause of the changes in the lens which lead to cataract are by no means clear.

We have noticed few printer's errors, yet we would have preferred *expectant* to *expectative*, and we have not been able to find the word *morphium* in any ordinary medical book.

In future editions it would also be well in such diagrams as

40, 42, 44, &c., to draw the observer's eye to the same size as the observed. It would also, we think, help the student were the course of the rays of light in the observer's eye also indicated. The practical points to be attended to in estimating errors of refraction are also well described. Altogether this volume should have a very extensive circulation.

A Manual of Nitrous Oxide Anæsthesia. By J. FREDERICK W. SILK, M.D. London: J. & A. Churchill. 1888.

THIS manual, we conceive, will chiefly be of use to general practitioners whose knowledge of the anæsthetic in question is rather scant—a fact emphasised by the author when he says: "Unfortunately the whole subject of anæsthetics is much neglected in our schools, in spite of the fact that it is in great measure to their discovery that many of the most notable improvements, in surgery especially, are due. It is only at comparatively few schools (I refer more particularly to medical schools) that even the slightest attempt is made to give systematic instruction upon the subject. In many—I had almost said the majority—a student may pass through the whole of his course, and receive his diploma, not only without seeing nitrous oxide itself administered, but without having one single word addressed to him upon anæsthetics of any kind." So far as this applies to the reagent before us, we fear it is but too true, though we are glad to think that the latter statement is too sweeping, at least when applied to schools north of the Tweed, where one form of anæsthesia was first put to practical test.

In Dr. Silk's manual will be found sections devoted to the history, physiological effects, pathological appearances, and the apparatus used, with hints as to the preparation of patient and methods of administration. We quite agree with the writer when he says that "the administration must occupy the sole and undivided attention of one individual" (other than the operator); but we would make the proviso that the administrator be acquainted with the properties of what he is using. Nitrous oxide is *par excellence* the anæsthetic of the dental surgeon, who has become familiar with it from instructions received in his student days at the dental school in which he studied; and for our own part we had rather trust ourselves in his hands than be left to the tender mercies of one who has never seen nitrous oxide administered, even

though he be a qualified medical man. The presence of the patient's own medical adviser may inspire confidence, and, as such, is of use; but in the majority of cases we have found that, apart from this, so far as real aid went, not much assistance was rendered. It is, indeed, a matter of regret, as is pointed out, that the general surgeon still continues to look upon nitrous oxide as a species of curiosity, not availing himself of its aid in many cases in which he would find it of the greatest service. The administration of a prolonged anaesthetic must always be a matter of anxiety to even the most skilled; and should a fatality take place during the performance of a minor operation, involving perhaps a single incision, it will be to him a lifelong regret, which might possibly have been avoided had a reagent been used in which risk was reduced to a minimum, and yet sufficiently prolonged to accomplish the end desired.

Regarding the readministration of the gas at one sitting, we incline to differ with the author when he says, "If, therefore, the patient has been much 'upset,' to use a common but expressive term, by the first administration, we must hesitate before advising a second." Hesitancy, we think, is here out of place, and we can hardly conceive of circumstances in which one would be justified in renewing so immediately the administration, when in all probability there would be a marked increase in the unfavourable symptoms. The chapter on Syncope and Asphyxia is carefully written, and contains many valuable hints, both as regards signs of impending danger and treatment to be adopted should they arise. Throughout, the work is profusely illustrated, and the index at the end shows that the author has been thoroughly in earnest in placing before his *confrères* a practical work, and in this we think he has in every way succeeded.

A Manual of the Operations of Surgery for the Use of Senior Students, House Surgeons, and Junior Practitioners. By JOSEPH BELL, M.D., F.R.C.S.Ed. Sixth Edition, Revised and Enlarged. Edinburgh: Oliver & Boyd. 1888.

DR. BELL'S well known manual has grown with successive editions, but still remains the most handy and convenient work for the student who has only a short time to devote to operations on the dead subject. We think, however, there is still room for compression and condensation, more especially

in the early chapters, which are spun out to an inordinate length, while the later ones are distinguished by a baldness of description and lack of detail such as almost render them useless. If Dr. Bell had dispensed with the crude and unnecessary History of Amputation, he might have found space for a fuller and more satisfactory account of enterectomy and gastrostomy, and even to have mentioned some of the operations on the uterus and its appendages besides ovariotomy. The chapter on "Operations on the Eye" would have been better left out altogether, it is so antiquated and misleading. The description of the simple operation of iridectomy is decidedly faulty, while iridotomy, evisceration of the eyeball, sclerotomy, and operations for trichiasis, ectropium, entropium, and ptosis receive no mention at all.

We are sorry that this edition shows so many evidences of imperfect assimilation of new material. The most flagrant example of this is found in the description of excision of the wrist. After giving three pages to a fairly accurate description of Lister's operation, he concludes:—"Among the various operations that have been devised, the following require notice: Mr. Spence, Dr. Gillespie, Dr. Watson, and the author use a single dorsal incision with excellent results, and find it quite easy to remove all the bones from it. . . . This method seems almost entirely to have supplanted the more tedious method of Sir J. Lister." If Dr. Bell really believes in the accuracy of his statement, he should, in fairness to the student, have given a full and accurate description of the dorsal flap method, instead of the meagre and incomplete account, occupying a third of a page of small type, which now contrasts so strangely with the minute details given of Lister's operation.

We notice that the excision of the knee by a reversed semilunar flap passing above the patella (known as Hahn's method) receives no mention, although it has been very successful in the hands of many surgeons, and offers many advantages, more especially as giving better access to the patellar *cul de sac* and to the femoral articular surfaces.

The author has given in small type, at the end of some of the sections, some comparatively recent figures as to the mortality of certain operations; but he has left the old statements remaining in large type. This results in the reader obtaining an exaggerated notion of the danger of such operations. Of what value, for instance, is it to be reminded of Hodge's table, which gives a mortality for excision of the hip of nearly 50 per cent, or Spence's figures, which give over

33 per cent for excision of the knee, when we know that no surgeon nowadays has anything like such mortality?

The book has been such a favourite in the past, and has been useful to so large a body of students and practitioners, that we regret to find it falling so much behind the age. It needs much more extensive excision of old matter, and the introduction of much new to make it worthy of the school from which it emanates, and the very excellent surgeon whose name it bears.

The Electric Illumination of the Bladder and Urethra. By E. HURRY FENWICK, F.R.C.S. London: J. & A. Churchill. 1888.

THE author first treats of the history of vesico-urethral endoscopy, including the platinum loop and incandescent lamp cystoscope; the methods of using these, their capabilities and failures. Thereafter he takes up the illumination of the urethra, and the use to which this may be applied in surgery. To those unacquainted with the electric illumination of the cavities of the body the book will be found valuable, as it also contains a good deal of information upon batteries, lamps, and accessories.

Although a number of instruments have been introduced for illuminating the bladder, the Neitze-Leiter endoscope is the best, and the results obtained from its use have been so far very satisfactory. Two instruments are used, one for the lower part and the other for the upper portion, including the anterior wall of the viscus. It need hardly be said that, as in the case of the laryngoscope and ophthalmoscope, a good training is required ere much can be made out. In the hands of those who have given attention to its use, however, valuable information has been obtained in obscure conditions, as can be seen at a glance from the cases quoted by Mr. Fenwick. What most surgeons will wish to know is to what extent it is likely to prove useful in ordinary cases, and it is only right to add that the author writes in a very fair way, and does not fail to point out wherein difficulties arise. For example, where blood or pus causes opacity of the urine nothing can be made out until, by washing out the viscus, a clear solution remains. Again, stricture of the urethra must be removed ere the instrument can be passed, and in enlarged prostate a good view is extremely difficult. Considering what has been done, however, there is great reason to

hope that further advances will be made, and in any case a valuable aid in physical diagnosis has been presented in the form of the endoscope. The urethra is treated in much the same way, and those interested will find it repay them to peruse the articles themselves. Mr. Fenwick is to be congratulated upon the production of his excellent work in connection with genito-urethral surgery.

The Localisation of the Lesions of Phthisis in Relation to Diagnosis and Prognosis. By J. KINGSTON FOWLER, M.A., M.D.Cantab., &c. London : J. & A. Churchill. 1888.

WE have much pleasure in directing the attention of our readers to the *brochure* which Dr. Fowler has recently published. The facts with which it deals are of the very greatest importance with regard to the diagnosis of phthisis pulmonalis, and the account the author gives of the line of "march of the disease" is of the greatest interest, and should be carefully tested by all who have the opportunity of observing any large consecutive series of cases. What seems to us to be the most original part of the work is contained in the following sentences :—"The lower lobe of the lung primarily diseased is usually affected at a very early period of the disease, often long before any extensive infiltration or destruction of the upper lobe has taken place, and, as a rule, before the apex of the opposite lung"—"in the great majority of cases, when the physical signs of disease at the apex are sufficiently definite to allow of the diagnosis of phthisis being made, the lower lobe is already affected." The whole 31 pages of which the little volume consists are well worthy the careful consideration of clinicians and pathologists, chiefly in order that, by a wider investigation and accumulation of facts, the doctrines of the author may be verified. We could have wished that Dr. Fowler had given us some idea of the actual number of cases on which his observations are based.

MEETINGS OF SOCIETIES.

MEDICO-CHIRURGICAL SOCIETY OF GLASGOW.

SESSION 1888-89.

OFFICE-BEARERS.

President, Professor M'Call Anderson, M.D.*Section of Medicine*.—*Vice-President*, J. Wallace Anderson, M.D.; *Council*, Samson Gemmell, M.D.; and Hugh Thomson, M.D.; *Secretary*, Geo. S. Middleton, M.D.*Section of Surgery*.—*Vice-President*, David N. Knox, M.B.; *Council*, Geo. T. Beatson, M.D., and W. J. Fleming, M.D.; *Secretary*, John Barlow, M.D.*Section of Pathology*.—*Vice-President*, Alex. Robertson, M.D.; *Council*, Wm. MacEwen, M.D., and Henry Rutherford, M.B.; *Secretary*, T. Kennedy Dalziel, M.B.*Section of Obstetrics*.—*Vice-President*, Edward Macmillan, L.R.C.S. Ed.; *Council*, A. Wallace, M.D., and W. L. Reid, M.D.; *Secretary*, Thos. F. Gilmour, L.R.C.P. Ed.*Treasurer*, Henry E. Clark, M.R.C.S.E.; *General Secretary*, Wm. G. Dun, M.D.

MEETING I.—5TH OCTOBER, 1888.

MEDICAL SECTION.

DR. J. WALLACE ANDERSON *in the Chair.*

THE BREAKDOWN OF OUR PRESENT HOSPITAL SYSTEM.

BY DR. F. J. SUTHERLAND.

Dr. Sutherland read a paper on the above subject, the first part of which will be found at page 345 of the present number; the concluding portion will appear in our next issue.

The Chairman said the meeting would agree with him that no subject could be brought forward more suitable for discussion in a Society of this kind. It concerned both hospital men and those who were not connected with hospitals. The subject was of the widest interest, and, as Dr. Sutherland had made hospitals his peculiar study, he hoped there would be a good discussion.

Dr. Ebenezer Duncan said that this question had interested him for the past twelve years. At that time he wished to know how many persons were really deprived of hospital accommodation for want of room. He applied to the Directors of the Glasgow Infirmary for information, so as to obtain the actual facts of the case. He found that of the persons who could get lines, a large number were turned away every day in the year, with the exception of a few weeks in summer. He also found in the course of his own practice, that there were numbers who could not get subscribers' lines, and he believed that at that time the want of accommodation was a real grievance, and recent statistics prove that the want of hospital accommodation is now much greater than it was twelve years ago. At first sight there is one thing that strikes one in connection with these tables; the fact that such a very small number of the population die in the hospitals in these large towns, and yet in these hospitals there is a death-rate of 6 or 7 per cent, the ratio being three times greater than it is among the general population where the death-rate is only 2 per cent. There is also to be noted the difference in the rate of hospital accommodation in the different parts of the country: in Dublin one bed to every 153 of the population, and in London about one to every 300, while in Glasgow and suburbs one in 700, or, Glasgow taken by itself, one in 500. He did not think, however, that there was any need of attempting to bring these ratios to anything like equality. The conditions of living in manufacturing towns and country districts are different. In the latter there should not be very great need for hospital accommodation. With regard to the question of doing away with subscribers' lines, he thought they ought to be abolished as speedily as possible in Glasgow. The only thing that should be taken into consideration is the necessities of the case. In Sunderland the subscribers' lines have been done away with, and the working men have obtained a representation on the Board of Management of the Infirmary. In consequence of these reforms in hospital administration, the subscriptions of the working men have trebled. This point has been dealt with in the constitution of the new Victoria Hospital. He did not believe that the hospitals were in great financial difficulties. In fact, both in the Royal and Western they have been making money. In 1870, when the Royal Infirmary had been more than seventy years in existence, it had a stock account of £49,000, that is to say, it had saved and invested £49,000, but at that time the Western was suggested, and it was said that if established it would ruin the

Royal Infirmary. At that time the Royal Infirmary was spending £19,000 a year. Now, what is the condition of matters at the present moment after the Western Infirmary has been established seventeen years? We are now spending on the Royal Infirmary upwards of £23,000 a year, and now instead of only £49,000 stock account, we have about £130,000. In the case of the Western Infirmary, which was to be a struggling institution, an institution that would never succeed, it has spent about £120,000 in building. It has maintained itself, is entirely free of debt, and has a capital of upwards of £40,000. It is quite true we have these lamentable statements of financial difficulties made, but he had not yet heard of any of the Infirmary Directors personally putting themselves very much about in getting subscriptions. The fact is, that after expending large sums in buildings, and increasing the annual expenditure by £4,000 a year, £4,000 a year has been the average saving in the Royal Infirmary for the past twenty years. In order to permit of the abolition of subscribers' lines, Glasgow must have a great deal more hospital accommodation than we have now, or than we will have even when the Victoria Infirmary is completed. He entirely approved of Dr. Hugh Thomson's idea of providing a consumptive hospital. He believed it to be necessary as a sanitary measure. Cases of tubercular diseases of the lungs are quite unsuitable for the wards of a general hospital, where we are treating other cases of non-tubercular lung disease of an acute and chronic character. Under such circumstances of close proximity the latter class of cases incur great danger of contagion. Dr. Sutherland's paper was a most important one, though he did not agree with him in the pecuniary aspect of the question. Financial difficulties only exist in these hospitals in London whose revenue has depended upon land. This revenue has diminished quite one-half, and it will take some time before they can accommodate themselves to the altered conditions. Not depending much on the public, and being in fact close corporations, there has hitherto been great extravagance in their management. Mr. Ernest Hart told him that he did not know of a single medical institution in London which depended really on voluntary contributions, the revenue of which is deficient except those referred to, which had enormous endowments in land. In Glasgow at the present time we do not require state help, and there is no need for a hospital rate. Dr. Duncan was quite satisfied we are quite able to help ourselves.

Dr. W. J. Fleming said this was a most important subject,

and one upon which a discussion was most desirable. They had to thank Dr. Sutherland for the way in which he had brought it forward. Great value could be extracted from it by discussion, and the time had now arrived when the profession should give forth no uncertain sound upon the subject, more especially in Glasgow for many reasons. He believed this Society should spend some portion of its time in discussing this subject, taking Dr. Sutherland's paper as its basis. He would therefore propose that the discussion be adjourned till the paper appeared in print, and that it be remitted to the council to arrange for its further discussion.

Dr. Perry seconded, and the motion was agreed to.

MEETING II.—12TH OCTOBER, 1888.

SURGICAL SECTION.

DR. KNOX, *Vice-President in the Chair.*

I.—CARD SPECIMEN.

DR. KNOX exhibited a mulberry calculus.

II.—DOUBLE TALIPES EQUINO-VARUS.

BY DR. KNOX.

A patient was shown who had suffered from extreme double talipes equino-varus, in which a wedge of both astragali was removed.

M. B., a girl aged 4 years, admitted 2nd June, 1888, with double talipes equino-varus. There was much distortion, the patient walking upon the head of the astragalus. On 6th June a vertical incision, 1½ inches in length, was made over outer part of right astragalus, down to the ankle joint, and the cancellated tissue of the astragalus was then removed by the chisel, leaving merely a thin lamina of bone in contact with tibia above, and another lamina in contact with os calcis below. The foot was then brought into good position, and the wound dressed antiseptically. The dressing was removed nine days later, when there was little discharge. On 23rd June a similar operation was performed on left limb. On 11th July both wounds were healed and passive movement was commenced. On 22nd September she was dismissed, walking well with Macewen's talipes shoes. Casts of limbs before and

after operating, and photograph of her present condition were shown at the meeting.

Mr. Clark, after congratulating Dr. Knox upon the success of the operation, said that surgeons now recognised that after talipes has existed for a long time, changes take place in the bones of the tarsus, which prevent the cure of the deformity by the old operation of division of the tendons. As he understood Dr. Knox, the entire astragalus was not removed, for it had been said that the integrity of the articular surfaces was not interfered with. There was always the danger in leaving portions of such a bone that they might not live, and hence necessitate removal at a later period.

Dr. Dun referred to the failure of tenotomy in a case of clubfoot, and wished information regarding the age at which excision of bone might be performed.

Dr. Dulziel regarded Dr. Knox's operation as removal of the most prominent part of the bony convexity of the clubfoot, in which respect it resembled Drs. Ogston's and Macewen's. The latter had excised the astragalus at all ages and with successful results.

Dr. Knox, in reply, stated that he commenced the operation with the intention of excising the entire astragalus, and for that purpose the ankle joint was freely opened. But after chiselling out the greater part of the cancellous tissue, he brought the parts together as he found that the deformity was remedied, and therefore did not completely remove the bone. The portions left united and consolidated, and produced a modified astragalus. The necessity for such an operation depended upon not the *duration*, but the amount of deformity. *Dr. Patterson*, of the Western Infirmary, was the first to excise a wedge of bone out of the tarsus, but after considering all the operations which have been performed, and the results obtained, Dr. Knox was inclined to regard excision of the astragalus, or of a wedge from it, as the simplest and the best.

III.—SARCOMA OF THE TIBIA.

(a) *MR. CLARK* exhibited a sarcoma of the tibia of seven weeks' growth, for which amputation in the thigh was performed.

The patient was a young man, aged 20 years, who was admitted into the Royal Infirmary on 24th September, 1888, complaining of a very painful swelling in the upper part of left leg. Seven weeks before admission there was a degree of

stiffness around the knee joint, and a dull, heavy pain. Three weeks later a swelling was noticed extending from the popliteal space, and the pain was so much worse that patient could not stand or walk upon the limb. There was no history of a blow or injury.

Upon admission the upper two-thirds of left leg was greatly swollen, there being an increase in circumference of nearly 3 inches over right leg. The skin was of a dusky hue, and showed dilated vessels. In the popliteal space an indurated swelling could be felt without pulsation and without eggshell crackling. The knee joint was not affected. The exploring needle was introduced into the tumour, and there escaped a dark fluid. The leg was amputated four days after admission.

Dissection of leg showed a tumour, about the size of an orange, springing from the posterior aspect of the head of the tibia. On its inner aspect the mass was distinctly osseous, but on the posterior and outer aspect it was soft and fluctuating, and contained blood. The blood-vessels had no connection with the tumour, but seemed to bisect it, causing the tumour to bulge on either side.

(b) DR. CAMPBELL thought it would be interesting to show a somewhat similar specimen removed from a patient in Dr. Dunlop's wards. The patient was a boy, aged 18, a tailor to trade, who had suffered from pain about the knee for three months. A swelling was noted in the popliteal space, attended with so much pulsation that the possibility of it being an aneurism was considered. The swelling increased in size, but the pulsation became less marked. Sarcoma was diagnosed, and the limb was removed in the lower third of the thigh. There was no history of an injury.

(c) DR. KNOX also exhibited a specimen of myeloid sarcoma of head of tibia for which amputation was performed. The patient was a boy of 20, who, four days before admission into the Royal Infirmary, had fallen down in the street and found himself unable to walk. Examination showed a large amount of swelling, in part inflammatory, around the knee, but not involving the joint. Palpation gave eggshell crackling over the lower part of the swelling, while above this part there was a soft part which pulsated, in which the finger could be pushed down into a distinct gap in the bone. A central sarcoma with fracture of the tibia was diagnosed. The patient, 18 months ago, had jerked this leg violently while playing football, and this had been followed by some swelling and pain; but whether this injury had anything to do with the origin of the tumour could not be made out.

Dr. Dalziel regarded Dr. Knox's case as one of central sarcoma which had remained central, and Dr. Campbell's as a central sarcoma which had early burst through the dense bony case, after which its growth had become more rapid. Mr. Clark's specimen he regarded as a central sarcoma from its site—viz., exactly inside the cancellous tissue of the tibia.

Dr. Knox referred to the prospects of life after operation on sarcomata of bone. Mr. Butlin gives statistics of 78 cases of subperiosteal sarcoma and 82 cases of central sarcoma. Of the latter only one was known to be alive three years after operation, and the great majority were dead before that time. Of the cases of central sarcomata, ten were known to be alive after three years. Sir George Macleod had a case of central sarcoma, and the patient was alive eighteen years after operation, and he (Dr. Knox) had a case twelve years ago, and the patient is still alive and well.

IV.—FOREIGN BODY IN LARYNX.

BY MR. GEORGE A. CLARK, L.R.C.P.

Mr. George A. Clark, L.R.C.P., then read notes of a case of foreign body in the larynx and exhibited the patient.

J. H., *æt.* 9, was admitted on 16th August into Ward 25 of the Royal Infirmary, suffering from what was described as fits, coming on, at irregular intervals, without any warning, and for which no cause could be assigned. Between the attacks (which lasted for variable lengths) patient seemed in the best of health, was able to run and play about, and in every way enjoy himself, but when seized with a "fit" he became cyanotic, and after the seizure had passed off there was profuse perspiration and exhaustion. As the character of these attacks did not simulate those of an epileptic character, and as no history could be obtained, the patient was kept under close observation. It was then noticed that these attacks, which were spasmodic, seemed to come on after the slightest attack of coughing or laughing, during which time the child had to sit up in bed, and although some attacks passed off in a few moments, others would last for some minutes, and when a constant irritating cough terminated in a severe fit of coughing the child would struggle for breath, and at times became so cyanotic as to threaten fatal results. It now became conclusive that the affection was in the larynx, and on inquiry from the parents we learned that it was supposed a bean had gone down his throat. It seems on the previous day he was playing with some other boys, during

which time he had his mouth full of beans, and a bigger boy having run after him hurled him to the ground on his back and knelt on his chest, when, it was supposed, one of these beans went down his throat. On the morning after admission the throat was carefully examined with the aid of the laryngoscope, but nothing could be detected. During that day he had a few attacks, which, at times, became somewhat serious, but beyond causing great prostration, nothing serious followed. During the night he had attacks also, and on the following morning it was decided to perform tracheotomy, but after making preparations, owing to the absence of any positive proof of the presence of a foreign body, it was postponed, with directions for me to do the operation only if an attack should come on so severe as to threaten life. That same afternoon I happened to pass through the ward, when I saw the boy sitting up in bed playing dominoes with two others, and a few seconds later I was followed by one of the boys saying that the child was choking. On returning, I found him lying back in bed quite cyanotic, and his breathing short and hurried. I immediately held him up by the legs and smacked his back, but this decidedly made him worse. His breathing now became slow and gasping, and he seemed half insensible, so I performed tracheotomy low down. On opening the trachea immediate relief was given, and as the operation was only done as a palliative measure, the tube was introduced. That night little or no spasm took place, and patient passed a fairly comfortable night, and on the following morning the tube was removed and the trachea examined, but nothing could be detected. The tube was again introduced, but the spasms still continued, and at times became so troublesome as to be only checked by the inhalation of a few drops of chloroform. During these attacks I noticed a distinct "click" as of something coming up from below and striking the lower end of the tube, and patient himself said he could feel something rising and falling. The temperature which had been high had now fallen since the operation, and as the spasms were also decreasing the tube was ordered to be removed. No bad effects followed this, and as the throat showed signs of laryngitis it was suggested that this only was the cause of the spasms. Potassium bromide was therefore given, but it was soon noticed that as the wound began to close so the temperature began to rise and the spasms to increase in severity. By the 1st September the wound had quite healed, and patient had a very severe spasm during the night, which had to be allayed by the inhalation of chloroform. On the

following night I was again called, being told that the child had threatened convulsions. I again found him in an asphyxiated condition, so resolved to again perform tracheotomy, and if possible satisfy myself that there was nothing present. Accordingly, I opened up the old wound and made a free opening in the trachea. I then opened up the trachea well with retractors, which caused a severe spasm of the glottis. I then watched closely, and after some time noticed something occasionally rise and immediately fall. This was dark in colour, and at first sight seemed like a clot of blood, but after being successful in touching it, I satisfied myself that some solid body was present. I then took a tracheal hook and opened up the trachea with the retractors to cause a spasm, and watching my opportunity, succeeded when the body rose in placing the hook beneath to prevent its return. I then managed to turn the hook round, and pinning it, withdrew it. The foreign body turned out to be a horse-bean, and its removal gave, of course, immediate relief. The wound was dressed, and healed rapidly. There was no return of spasms, and patient was dismissed on the 19th September.

Drs. Knox, Macintyre, Campbell, and Mr. Clark commented upon the case, and agreed in the necessity of the operation of tracheotomy being performed when there is clear evidence of the existence of a foreign body in the trachea.

MEETING III.—19TH OCTOBER, 1888.

PATHOLOGICAL SECTION.

DR. ALEX. ROBERTSON, *Vice-President, in the Chair.*

I.—CASE OF POLYURIA WITH LOCALISING SYMPTOMS.

By DR. ALEX. ROBERTSON.

A patient was shown suffering from diabetes insipidus of about eight months' standing. He was a soldier for some years, and is now about 30 years of age. Careful examination failed to elicit any indications of syphilis, and none was admitted. His illness dates from about 6 months before admission into the Infirmary, which was on the 2nd August last. He had lost about two stones in weight in the earlier months of his malady. No probable cause could be assigned. The amount of urine ranged from 150 to 190 ounces in 24

hours, though once it had reached 290 ounces. The specific gravity was generally from 1003 to 1006. It was always free from albumen or sugar. Dr. Ritchie had found that the quantity of urea excreted in the 24 hours was 479 grs. There were no general symptoms of renal disease. Though scarcely any appreciable difference existed between the two sides of his face when at rest, movements which called into action the lower facial muscles—*e.g.*, showing his teeth, the articulation of certain words, &c.—showed that the right side was distinctly weak. On many occasions, especially during the last three or four weeks, he had sudden attacks of difficulty in speaking, lasting from 20 minutes to 24 hours. They were preceded in most cases by a feeling of sleepiness. The defect was in articulation—a marked stammering, with special difficulty in the beginning of a sentence; there was no loss of language. Dr. Fergus reported that there was a moderate degree of neuro-retinitis, and that the movements of the right pupil (the sight of the left eye being damaged by an old injury) were restricted, not responding much to light, or accommodation, or cutaneous irritation. The pupil itself was moderately contracted. The pulse ranged between 50 and 60. Without inquiry he stated that he had often a feeling of chilliness, but that sometimes he had only become aware of this fact by the remarks of his friends on his pale, cold aspect. Besides this, several times he had felt the right ear very hot. Dr. Robertson had seen it in this condition, and said that it was scarlet from the injection of the blood-vessels, and that the redness extended to the cheek. The contrast with the other ear was very marked, as it was blanched and chilly. There was no undue secretion from the eye or nose. General sensation and motion had never been affected. Consciousness had not been involved, and his general intelligence was good.

In reviewing the facts of the case, Dr. Robertson said:—As you are aware, Claude Bernard induced a glycosuria by puncturing the floor of the fourth ventricle, and by puncturing, a little higher up, a polyuria. Still there are wanting cases in the human subject corroborating the idea that the lesion is in that part of the brain; but this case clearly supports the indications derived from Claude Bernard's experiments. The speech being affected in the manner described pointed to temporary disorder in the nucleus of the ninth nerve. But there is an organic and more permanent defect of the facial nerve present, the nucleus of which is a little higher up, but not far from the same situation. Also we have temporary irritation and palsy of different parts of the vaso-motor nerves,

the centre of which is situated there also. No doubt there is probably an important controlling centre of the vaso-motor system in the cortex of the brain, but we also know that there is a centre of great importance in the medulla oblongata. Further, the slowness of the pulse may indicate an inhibitory influence on the pneumogastric nucleus, but the reduction in the number of pulsations did not warrant much stress to be laid on this point. We have, then, these indications of disease independent of the polyuria altogether. The state of the pupil might also suggest some degree of paralysis of the sympathetic. The pupil is generally somewhat contracted, which may no doubt be due to stimulation of the nucleus of the third nerve; but in view of the other indications of vaso-motor paralysis, we may conclude that not improbably this condition of myosis is due to the same cause. With regard to the polyuria, what is it to be ascribed to? Is it due to trophic nerves whose function is impaired, though their existence is still called in question; or is it rather due to a paralysis of the vaso-motor nerves of the kidney? Dr. Robertson held that the latter view was much the more probable, considering the clear indications of general disorder of the sympathetic which were obvious in the case. He thought there was distinct change of nerve structure present, though scarcely amounting to a definite tumour.

Medicinal treatment, the details of which were mentioned, had not been of much use. It was, however, intended to try galvanism passed through the medulla oblongata.

II.—NECROSIS OF THE LOWER THIRD OF THE FEMUR.

BY DR. WHITSON.

The specimen shown presented a solid shaft of new bone occupying the space of the lower third of the femur, while behind it lay the remains of the original shaft, as a semi-circular sequestrum embedded in a pus cavity whose walls were formed of thick fibrous tissue. It appeared as if the posterior part of the shaft had necrosed and been thrown off, while the anterior had been transformed into an ever thickening shaft. Fracture of this newly formed bone having occurred—into the adjoining septic tissue—acute periostitis and severe constitutional symptoms necessitated amputation, after which the patient made a good recovery.

Dr. Hugh Thomson held that periosteum was the true source of bone, and instanced a specimen of Professor Syme's, where there was necrosis of the whole shaft, while

the periosteum was subsequently studded over with new bone.

Dr. Dalziel considered that the difficulty resolved itself into the conception of what is and what is not periosteum. Many looked on it as the fibrous covering of bone, and nothing more, in which case it could have little or no influence in the formation of new bone; but if, as in standard works on anatomy, there is included the surface osteoblasts of the bone, and these, as occurs in certain inflammatory affections, adhere to the fibrous periosteal sheath on elevation from the bone, then undoubtedly new bone formations may occur from such a periosteum.

Dr. Knox said the specimen would seem to suggest that there was a former fracture—an old oblong fracture near the condyle that has united, but at another part the bone has not united but necrosed. It seems, however, as if there were atrophy of bone above the seat of fracture.

III.—RUPTURE OF SCLEROTIC INVOLVING CILIARY REGION.

BY DR. C. FRED. POLLOCK.

Dr. C. Fred. Pollock exhibited microscopic sections of rupture of sclerotic involving the ciliary region, and gave a history of the case.

Mr. H. E. Clark thanked Dr. Pollock for the beautiful specimens exhibited under the microscopes. Of course such accidents are not uncommon. In one case which he had, there was simply loss of lens, but not followed as in this case by sympathetic inflammation of the other eye, and herein the danger consists. It has always been a moot point as to what this sympathetic inflammation is due to, but we have learned to associate it with injuries in this region. He would like to know if the sight in the other eye returned to its original condition, and also the interval from the time of injury to the time of enucleation (six weeks). We generally leave these too long with the hope that the injury may get better.

Dr. McGregor Robertson asked if the ciliary body was caught in the cicatrix. If so, it is almost certain to set up symptoms of sympathetic symblepharon. He has seen as great an injury with the exception of rupture, and these cases will recover without any evidence of symblepharon at all, but in several cases which he could recall (in which there was not much evidence of rupture and entanglement of the ciliary body), and yet these had resulted in symblepharon. As regards absorption of the lens it was due to greatly increased intra-ocular pressure,

and not due to inflammatory change. In a case of his, in which the patient had received a blow over the eye without rupture, there was a great flow of blood into the anterior and posterior chambers, and in which puncture was performed several times to relieve pressure, on absorption taking place not a trace of iris was seen. There was no dislocation of lens. He thought it would be agreed that when there is rupture and involvement of the ciliary body, one cannot be too watchful as to the course of events.

Dr. Pollock in reply said there was no increase in the intra-ocular pressure. He looked upon the atrophy of the iris as due to the dislocation of the lens forward.

IV.—LARGE NASAL POLYPUS.

By DR. MACINTYRE.

A large nasal polypus and microscopic sections were shown, and the following is the history of the case:—

T. F., Carlisle, *æt.* 17, farmer's son, came to Dr. Macintyre on the 2nd October, 1888. His father said that for four years the patient had complained of difficulty of breathing, and that pieces of a growth had been removed on more than one occasion from the nose. The following notes of the case were taken:—"The patient is apparently healthy and well formed; nasal stenosis might, however, be suspected from the buccal respiration, deviation of the septum to the left side, and want of resonance of the voice. On examination of the cavities, the cartilaginous portion of the septum is seen to be driven against the left ala of the nose, and respiration is considerably obstructed in consequence. On the right side the whole interior seems to be filled with a neoplasm. Breathing is impossible, and strong expiratory effort fails to move the mass when requested to blow his nose. With the rhinoscopic mirror the posterior part of the tumour is easily seen, filling the nostril and resting upon the soft palate, although not reaching to the lower border of this structure. Hearing is good on both sides, and the sense of smell is present on the left side to a considerable degree. The family and personal history give nothing of importance. The patient has not been troubled with headache, and there is an absence of reflex phenomena often associated with such conditions."

Although many methods have been suggested for the removal of these neoplasms, in this case one was limited on account of the size. Neither the hot nor cold snare could be used, as a wire could not be got round the mass. Moreover,

the anterior extremity was rounded, smooth, and very soft, and forceps could not easily be got to seize it. What was done was to pass a small hook into the mass, which was then twisted from right to left several times. In this way a sort of artificial pedicle was formed, of a sufficiently tough nature to allow of traction without tearing away the portion seized. The wire of Woakes' nasal snare having been applied, the rotatory movement was continued, and the whole mass came readily away. When removed it measured $4\frac{1}{2}$ inches in length and 1 inch in its greatest diameter; was soft, bluish-grey in colour, semi-translucent, with well marked blood-vessels running into the mass along with strengthening bands of a white fibrous nature. After removal the interior of the right nostril looked unusually large, on account of the position and shape of the septum. Beyond the pressure marks, the mucous membrane proved to be fairly normal in appearance. Next day the patient called before leaving for the south, and the part from which the tumour sprang—viz., the posterior portion of the border of the middle turbinated bone—was touched with the galvano-cautery, with a view to prevention of recurrence. By this time, the cartilaginous portion of the septum having gone over to the middle line somewhat, a good view was obtained of the left nostril, which was found to be comparatively healthy.

With regard to the size of this tumour it is somewhat unusual. He had removed a considerable number, but he thought this was the largest. Mackenzie speaks of a larger one than this, and also Stoerck, of Vienna. The only other case which he had like this was one which came to Anderson's College Dispensary. It filled the whole nostril, and the method of treatment was rather instructive. He took a saturated solution of tannic acid and injected it into the tumour, and in a day or two afterwards the man blew the whole of the tumour into his handkerchief. On applying this treatment to another case it was not followed by the same satisfactory result. With regard to the method of removal, he caught it with a hook and twisted it round and round, and the whole mass was very easily removed. The haemorrhage was rather slight. A good deal of attention has been paid to the pathology of these tumours, and particularly so since Dr. Woakes has produced his work on nasal polypus. So far as this is case is concerned, we have a lad with a very large tumour giving very little discomfort and very little deformity of the face, and the mucous membrane comparatively healthy. If an inflammatory change was at all the cause of this, it must

have been exceedingly slight at the beginning. The specimen has been placed under the microscope. It is a myxoma, with some fibrous structure in it. Dr. Macintyre explained that the nervous phenomena were in these cases due to reflex action.

V.—MICROSCOPIC SECTIONS OF SARCOMATA OF TIBIA.

Drs. Clark, Knox, and Campbell exhibited microscopic sections of sarcomata of tibia.

Dr. Dalziel said he examined the tumour which Mr. Clark spoke of last meeting; it was a typical osteo-sarcoma throughout. In the greater part of the tumour, especially towards the surface, there is a regular progressive ossification, and, indeed, ossification may be traced all through it. There was also some blood in the tumour where it was punctured. Probably the tumour had originated in the posterior wall of the tibia.

Dr. Campbell said the section which he had to show under the microscope was from one of the specimens of sarcoma shown at last meeting of the Society. It differs from what Dr. Dalziel has just described, in regard to the fact that the osseous element is absent. The section was made from the periphery, but there seem to be signs of ossification in the centre of the tumour. Under the microscope there is seen numerous round cells.

Dr. Knox said the specimen he had to show was a central sarcoma. It seemed to him to be a mixed tumour, masses of not only round cells, spindle cells, but also large irregular protoplasmic bodies multi-nucleated like myeloid cells. In certain parts of the tumour there are large irregular spaces in which there are nothing but blood corpuscles, presenting an appearance very much like a sponge.

GLASGOW PATHOLOGICAL AND CLINICAL SOCIETY.

SESSION 1887-88.

OFFICE-BEARERS.

President—Professor W. T. Gairdner, M.D., LL.D. *Vice-President*—David Newman, M.D. *Treasurer*—J. B. Russell, M.D., LL.D. *Hon. Secretary*—A. Ernest Maylard, B.S., M.B. *Hon. Editorial Secretary*—J. Lindsay Steven, M.D. *Council*—J. Finlayson, M.D.; T. S. Meighan, M.D.; George Middleton, M.D.; Henry E. Clark, M.R.C.S.

MEETING I.—8TH OCTOBER, 1888.

PROFESSOR W. T. GAIRDNER, M.D., *President, in the Chair.*

OPENING ADDRESS BY THE PRESIDENT.

PROFESSOR GAIRDNER delivered a short address, of which the following is the substance:—When you did me the great honour and favour of inviting me to preside over this Society at its first institution, and afterwards showed your further confidence in me by reappointing me to the President's office for two successive sessions, it was certainly not at all within my expectations that, fifteen years after the first movement which took the shape of a Pathological and Clinical Society in Glasgow, I should again be unanimously required to occupy the same office without, I need not say, any sort of collusion on my part. I can only suppose that, as in the circular signed by our friends, Drs. Hector C. Cameron and James Finlayson, and dated 21st November, 1873, the initiative of the Society is ascribed to "some of the younger members of the profession," you have come to the conclusion that your first President, certainly not quite a juvenile when you saw fit to appoint him, has been growing so much younger in the interval as to have become all the more qualified to sit in the chair during yet another session. I shall obey your behest, then, gentlemen, without too curiously asking whether my own feelings respond in all respects to this call upon my energies, but with the entire conviction that my gratitude to you, and my continued enjoyment and appreciation of the work of this Society, are happily in accord in binding me over to promote, as well as I can, your interests and your labours henceforth.

There is always a certain amount of sadness in the retrospect of fifteen years; and we have not escaped the common lot in this respect. But it is perhaps a testimony to the principle of youthfulness that was at the bottom of the institution of this Society, that, of the twenty-one original members who met on 25th November, 1873, only one has been removed by death; and all, except that one, and another who has ceased to reside in Glasgow, are still with us, and still active and efficient members of this Society. The one who has "gone over to the majority" was well known to, and much loved by, all of us. When I name Dr. John Wilson, late of Hillhead, you will at once recognise a man of singularly

retiring character, but of unusually fine accomplishments and thoughtful nature; one, too, who alike in his professional life generally, and in his converse with us, was always quietly helpful to all of us; willing to "spend and be spent" without a trace of self-assertion, and therefore without exciting either jealousy or misgiving.

At a later period Dr. David Foulis joined our ranks, and you are all aware how well and how wisely he worked for us, not only in the way of many original contributions of material for the Royal Infirmary, but as superintending our reports for the journals. He, too, has been lost to us; and it is not necessary now to recall the high and bright promise of a brilliant career as a surgeon, pathologist, and laryngologist, which was cut short by a death premature indeed, according to all human expectation, but not premature, if we consider it as the close of a life of unselfish devotion to his art, by the crown of what may, without exaggeration, be called a martyr's death on behalf of humanity.

At a yet later date we admitted two of my most intimate personal and professional friends, both of whom are now gone. I will not trust myself to say much of them—Dr. Scott Orr, high as he stood by general consent, and by seniority alike, and Dr. Robert Smart, both of them loved and valued by every one of us. These four make up our death-roll, and it is surely remarkable enough that there are no more. Other changes there are, not a few; but the essential nucleus of our Society has remained almost unchanged; and its method of working remains almost exactly what it was at first.

Dr. Gairdner next adverted to the general character of the work done in the Pathological and Clinical Society during the fifteen years of its existence, which he regarded as fully justifying, because effectually carrying out, the programme which had been devised at the commencement. To show the nature of that programme, and what position was claimed for the Society at first, Dr. Gairdner adverted to his own first address as President in 1874, from which several extracts were read, as being altogether in conformity with later experience, and with the expressions that might have been used to-day. So much was this the case, that Dr. Gairdner proposed to place this old address once more before the members by issuing it as part of a volume now in the press, and also as a separate sheet to be circulated with the next billet. It would then be observed how closely the Society has adhered to its original intention and plan of work, although in one particular—viz., the extended discussions upon special

subjects, under the control of the Council—it has followed the precedent of the Pathological Society of London in allowing a kind of business not originally in contemplation. How far it may be expedient to continue such discussions in the present or in future sessions, Dr. Gairdner would not now attempt to indicate. Financial difficulties would interfere, in the meantime, with their being prosecuted on the scale and in the manner of the last two, although the interest in these was certainly unabated.

It was a great pleasure to him (Dr. Gairdner) to refer to the fact that one of the most conspicuous illustrations that could possibly be given of the value of pathological and clinical studies, jointly pursued according to the plan of this Society, was to be found in that splendid contribution to brain surgery which had excited so much attention and applause at the meeting in Glasgow of the British Medical Association. Dr. William Macewen was one of the most active and most valued members of this Society, and his work in this and other departments of surgery—done in the very spirit of Morgagni, and bringing to a focus so much admirable research in anatomy, physiology, and pathology, by himself and others—would of itself be sufficient, if it were necessary, to show how immense is the value, even for practical issues in medicine and surgery, of work done according to Morgagni's example and method.

In order to give some variety to the proceedings of this session, Dr. Gairdner proposed, with the approval of the members, to submit to the Council that certain meetings might be set apart for contributions to two distinct subjects—one on the Clinical, the other on the Pathological side. On the former, it had occurred to him that diseases of the skin—eminently fitted as they were for demonstration and for mutual instruction—had not hitherto received the attention they deserved. When in London some time ago he had attended a meeting of the Dermatological Society, one of the younger and less known associations of the metropolis, and had been greatly pleased with the admirable work done there. He desired to see (of course on a much smaller scale) an attempt made in this direction in Glasgow. On the Pathological side he had another suggestion to make, which grew naturally out of some remarks he had made in a recent volume published jointly with Dr. Coats. Pathology being largely founded on observations made in the dead body, and often to ascertain the cause of death, there arose what might be called a "pathological bias" towards a more gloomy forecast or

prognosis, in certain cases than was justified by the facts. But even pathological anatomy, if thoroughly and scientifically studied, could do a good deal to retrieve its own discredit in this respect, for it could be made to yield up not only causes of death, but also evidences of cure. He proposed, therefore, that one or two evenings should be devoted entirely to the exhibition and discussion of such lesions as could be got together from our great hospitals and elsewhere, illustrating the processes of repair and healing in various forms of disease and in various organs.

I.—DR. GEORGE T. BEATSON showed a fresh specimen of CYSTIC ADENO-SARCOMA of breast of considerable size. It was of ten years' growth, and had almost entirely replaced the mammary tissue.

Dr. Joseph Coats gave an account of the microscopic examination of the growth.

II.—CASE OF SPINA BIFIDA IN THE CERVICAL REGION CURED BY THE INJECTION OF MORTON'S FLUID.

BY GEORGE T. BEATSON, M.D.

Dr. Beatson brought before the Society a case of SPINA BIFIDA, high up in the cervical region, which had been cured by the injection of Morton's fluid. The photograph taken of the case the day before operation showed the tumour to have been of the size of a Tangerine orange. The injection was first done on 20th January, 1887, when the child was 8 weeks old. The case seemed a favourable one for operation as regards the absence of any complications; but the position of the deformity, so high up in the spine, seemed an unfavourable element. No bad effects, however, followed the injection beyond that the child was very restless for two or three days. Considerable improvement followed, the size of the tumour becoming less. On 9th March, 1887, the injection was repeated, as the tumour, though smaller in size, had become stationary. So little effect followed that a third injection was made on 15th April, 1887. After this the swelling slowly diminished, and in a few weeks it had shrivelled up into a lump of loose and flaccid skin. At this time, and coincident with the cure of the tumour, there was noticed a marked enlargement of the head, and distinct evidence of hydrocephalus showed itself. For some time the child's condition in this respect was not satisfactory; but the symptoms subsided, and eventually became arrested. At the present date—one year and a half

after the disappearance of the tumour—the child's condition is satisfactory, and he appears in every way intelligent. Chloroform was used during the injections, and the amount of Morton's fluid used on each occasion was one drachm, about two drachms of the fluid contents of the tumour being first withdrawn. This fluid presented all the characteristics of cerebro-spinal fluid. When the child was under the anæsthetic and the tumour not tense, a deficiency in one or two spinous processes could be felt. The opinion formed about the case was that the opening into the tumour was not a large one, and that perhaps it was a pure spinal meningocele, specimens of which are rare in our museums, probably because they are less fatal than the other forms of spina bifida, inasmuch as they often undergo spontaneous cure.

III.—SPECIMEN OF AN UNUSUAL CASE OF SPINA BIFIDA ACCOMPANIED BY OTHER DEFICIENCIES IN DEVELOPMENT.

BY GEORGE T. BEATSON, M.D.

Dr. Beatson also showed a specimen of an unusual form of spina bifida. The child from which the specimen was taken was first seen when it was 10 weeks old, and the history given of the case was that the tumours were present at birth, and though large, had increased in size afterwards. The following is the note made early in July, when the case came under observation :—As the child lies on its left side, the right lumbar region and the upper part of the right buttock are occupied by a globular swelling, the size of a large cocoa-nut. It measures 8 inches across, and 12½ inches in its circumference. It is translucent at its middle part for a considerable extent, but the lower portion of it is covered with normal skin. It goes back to the middle line, and even overlaps it, but it has a lateral position which is unusual in a spina bifida, which it seems to be. On placing the child on its back this posterior swelling is almost continuous with another globular tumour in front, which extends down over Poupart's ligament, and blends with the upper part of the thigh. A kind of groove divides the two swellings, the posterior one being the larger of the two. It is dull to percussion, the anterior one being resonant. The right leg is much shorter than the left one, and it is twisted in under the thigh of the left leg, which, however, seems well developed, although the foot is in a condition of talipes varus. In all other respects the child is healthy, and has of late improved very much in its general health.

The opinion formed of the case was that the posterior swell-

ing was composed of a protrusion of the spinal cord and its membranes through some deficiency in the spinal column, and that the anterior one was a hernia, not occupying any of the usual seats of that affection, but coming through an aperture in the abdominal wall.

As the parents were anxious something should be done for the posterior swelling, which was increasing and threatening to burst, it was decided to inject it with Morton's fluid. This was done on 13th July, 1888. Four and a quarter ounces of clear and limpid fluid were first drawn off, and then one drachm and a half of Morton's solution was injected. The child was under chloroform, and stood the operation very well. On 20th July, the mother reported that the baby had been very quiet since the injection, and that she thought the tumour smaller. On 3rd August, as the child seemed well and everything favourable, the injection was repeated under chloroform. The same amount of fluid was drawn off as before, and the same quantity of Morton's solution injected, but no sooner had this been thrown in by the syringe than the child became ghastly white, showed some convulsive twitchings of the face, and after two or three gasps died. Everything was done exactly as on the first occasion, and the sudden and fatal issue that took place was quite unexpected.

The following day permission was given to examine the abdomen and ascertain the nature of the swellings. The examination revealed a number of deficiencies in development. The posterior swelling was a protrusion of the spinal cord and its membranes, owing to an absence of the right laminæ of some of the lumbar vertebrae. It was this that had given the lateral position to the tumour. The contents of the anterior swelling were the cæcum and the ascending colon, and the aperture through which they passed arose from a non-development of the iliac bone on the right side, so that the abdominal muscles had no place of attachment. There was only one kidney and one supra-renal capsule, and it was not situated in the right loin, but lay in the central line on the promontory of the sacrum. To all appearance it seemed a solitary kidney, arising from the fusion of two of these organs into one mass, but further examination showed that it possessed only one ureter, and that it was really an unsymmetrical kidney, or in other words that there was an entire absence of one kidney. The femur was very slender, just like a pipe-shank, and there was no development or appearance of muscles in the thigh.

Dr. Beatson stated that his reasons for bringing the case forward were the occurrence of death during injection, the

lateral position of the spina bifida, owing to absence of the right laminæ of some of the lumbar vertebrae, and the occurrence of other deficiencies of development, such as the single kidney, the absence of the iliac bone, with the consequent hernial protrusion, and the small size of the femur. All these points made the case one of interest, and suitable for the consideration of the Society. In the London *Medical Gazette* for 1844, a case of spina bifida is recorded by Sir Prescott Hewett, where the same deficiency in the right laminæ of some of the lumbar vertebra was observed, but in the report of the case nothing is said as to the lateral position of the tumour being a point noticed.

Dr. Cameron said—Dr. Beatson's cases illustrate two of the dangers attending this treatment. He remembered having two cases about the same time; one of them was a very young baby, very favourable for operation. Nothing was more satisfactory than the cure of the spina bifida by injection in this case; but, shortly after, the head began to enlarge, and the child died ultimately of hydrocephalus. A second case he had about the same time, in which operation was delayed till the child was about a year old. The spina bifida began to leak, and it was sealed. A year after it was injected by Dr. Cameron, and healed up well. These two cases struck him as being a very great contrast. Would it not be well to delay operation till the bones of the skull were ossified, and so lessen the tendency to hydrocephalus? He was disposed to advise delay.

Dr. Knox had now seen several cases, of which only one had been cured. He had asked Dr. Morton to see his last two or three cases, and in all of them death took place in two or three days at the outside. He had a successful case in the Western Infirmary some years ago. The tumour was very large, situated in the sacral region, and life was in great danger from pressure on the pelvic organs. He therefore took the extreme measure of emptying the sac, and removed 16 ounces of fluid, thereafter injecting. It healed up well, and has been several times shown since to Dr. Morton and others.

IV.—CASE OF LARYNGEAL STENOSIS TREATED BY TUPELO WOOD DILATORS.

BY DAVID NEWMAN, M.D.

The details of this case are given in a paper which appeared in the *Journal* for October, 1888 (see page 320).

GLASGOW OBSTETRICAL AND GYNÆCOLOGICAL SOCIETY.

THE first meeting of the fourth session of this Society was held in the Faculty Hall, St. Vincent Street, on Wednesday evening, 24th October—Professor A. Wallace, President, in the chair.

After the Secretary and Treasurer had presented their reports, and the President had delivered his retiring address, the following were elected office-bearers for this Session:—
Hon. President, Professor W. Leishman, M.D. *President*, J. Stuart Nairne, F.F.P.S.G. *Vice-Presidents*, M. Cameron, M.D., and R. Park, M.D. *Treasurer*, R. Pollok, M.D. *Reporting Secretary*, E. H. L. Oliphant, M.D. *Secretary*, G. A. Turner, M.D., 1 Clifton Place. *Council*, W. L. Reid, M.D.; P. C. Smith, M.D., Motherwell; G. Halket, M.D.; D. Tindal, M.D.; T. F. Gilmour, M.D.; A. Scott, M.D., Tollcross.

A discussion then took place on “The Dorsal *versus* the Lateral Position in the Use of the Forceps,” which was introduced by Dr. M. Cameron, and in which Drs. S. Sloan, A. Wallace, Marshall, Tindal, Gilmour, Turner, Pollok, Stark, Knox, Halket, Miller, and Nairne took part.

The meetings are held in the Faculty Hall, on the fourth Wednesday of each month, at 8:30 P.M.

ABSTRACTS FROM CURRENT MEDICAL LITERATURE.

MATERIA MEDICA AND THERAPEUTICS.

By DR. A. NAPIER.

Salicylates and Caffeine in Headache.—Dr. James Little, of Dublin, has published a valuable note on the relief of migranous headache by a combination of salicylate of sodium and caffeine. Though typical migraine is not very common, we frequently meet with persons suffering from headaches which appear to be of the same nature. This headache occurs at various intervals—three or four times a year, sometimes two or three times a week. The following case is an instance. A married lady, of 58, had suffered for eight years from headaches which had begun two years after the menopause. At first they occurred every three or four weeks; of late the intervals had been only ten or twelve days. The evening preceding the attack she feels drowsy, and during the night often has nightmare. She awakes about five o'clock with throbbing pain in the vertex; retching almost immediately begins;

and this continues violently and convulsively during the day, so that she cannot leave her bed—the pain in the vertex continuing all the time. About eight o'clock in the evening her sufferings begin to abate, and next morning she is as well as usual. Much pale urine is passed during the attack; her appetite is always poor; she eats little butcher's meat, and has confined bowels. She suffers almost every night, more or less, from nightmare, and is constitutionally anxious and easily worried. Dr. Little advised her to take pills of bromide of zinc and Indian hemp twice daily, and to use when the attack began the following combination:—Twenty grains of salicylate of sodium in a wine-glassful of water made effervescent by the addition of a dessertspoonful of the granular citrate of caffeine. The effervescent caffeine makes the dose a very palatable one, while the salicylate alone is not, and probably renders it more useful; but that the good effect is not due to the caffeine is proved by the fact that Dr. Little has seen it relieve persons who had previously used the caffeine alone without benefit. If necessary, a second or even a third dose may be given at intervals of two hours. It does not lose its effect.—(*Dublin Journ. of Med. Science*, June, 1888, p. 489.)

Infant Feeding.—The Section of Dietetics of the American Medical Association has lately been occupied with the important question of infant feeding, and at a recent meeting a report was presented by Dr. Frank Woodbury, on behalf of his fellow committee-men, embodying the results of two months' investigation into the views and beliefs of the leading authorities on the subject. The following is a summary of the chief points in that report. Fresh unadulterated cow's milk, when properly prepared, is a suitable substitute for breast milk for an infant under 10 months of age who is deprived of his natural article of diet. The casein of cow's milk forms a curd which is too dense and heavy to be digested in the stomach of the infant, and which is therefore a source of irritation, and likely to give rise to diarrhoea. Frankland's method of peptonising the casein of cow's milk with rennet may be recommended as the best means of providing an artificial substitute for human breast milk; but it must be pointed out that the necessary skill and intelligence required in its preparation are rarely met with in an ordinary household. The plan of adding starch to the milk in order mechanically to break up the curd is objectionable, as quite unphysiological. Even when steps have been taken to render the starch soluble, the resulting products, glucose and saccharose, have but very slight nutritive properties, and when given in excess are apt to cause diarrhoea. Reference was also made in the report to dextrine, the result of partially digesting starch, as a substitute for glucose and saccharose, and it was especially insisted that the food should never be entirely predigested, for fear of permanently weakening or destroying the digestive functions of the stomach. Inasmuch as in large cities the high rate of infant mortality is greatly due to the bad quality of the milk, authorities are almost unanimous in recommending that, at least during the hot weather, all milk should be boiled, and that the food should be prepared separately for each time of feeding. In very weakly or premature children artificial mixtures are sometimes found to agree better than the mother's breast milk.—(*Philad. Med. Times*, vol. xviii, No. 354, 1888; *Practitioner*, September, 1888.)

Iodoform Internally in Tuberculous Meningitis and Diarrhoea.—Recovery in a case of tuberculous meningitis which was treated internally by iodoform is reported by M. G. Lemoine, the lecturer on therapeutics at the Lille Medical School. The patient was a girl of fifteen. In the other similar cases in which iodoform has been used (in Sweden by Moleschott, Nilson, Sonden, in Germany by Bauer, Cesfeld, Lövenfeld, in the United States by Dr. Brower) [*Practitioner*, xl, 458], it has been employed in an ointment to the head. M. Lemoine, however, gave as much as gr. viii a day internally without any inconvenience to his patient. He had frequently given as much, or rather more, as a daily dose in tuberculosis, typhoid fever, and severe diarrhoea, without exciting the stomach to intolerance as had been

the case in similar treatment by M. Dujardin-Beaumetz. Such doses had sometimes been continued for two or three months without discomfort. He found it of special value in the diarrhoea of tuberculous disease of the bowels. It was very true that iodoform had quite failed as a general specific against tubercle; it was quite useless against the common pulmonary forms. Still he thought the results with abdominal tuberculosis better than he could have hoped. The best form of taking it was in capsules containing a solution in ether (*perles de Clertan*), and as much as gr. iv might be given for a dose. —(*Le Progrès Médical*, 11th August, 1888, p. 113.)

Chloral in Sea-Sickness.—The use of chloral as a preventive against sea-sickness is warmly advocated by Prof. Charles Richet. He is anxious that a considerable dose of about 45 grains should be taken before the voyage is begun, for it is of no avail to attempt to retain the drug after nausea has begun. Sleep should be induced before the ship starts, and if the traveller wakes he advises more of the chloral, so that sleep may be kept up even for 24 or 36 hours, which he has found not to be attended with any evil consequences. —(*Progrès Médical*, 8th July, 1888.)

Sulphonal : A New Hypnotic.—Sulphonal, diethyl-sulphon-dimethyl-methane $(\text{CH}_3)_2 - \text{C} = (\text{SO}_2\text{C}_2\text{H}_5)_2$, comes to us as a new hypnotic, with all the recommendations and the absence of disadvantages for which we are now prepared in connection with the introduction of therapeutic novelties. Sulphonal is represented as being free from taste and odour, as assisting and inducing sleep, and as being entirely innocent of unfavourable effects during and after its hypnotic influence, even in disease of the heart. Both Kast and Rabbas speak highly of the drug. The latter has tried sulphonal particularly in the insomnia and excitement of the insane, and goes so far as to propose to put the new remedy at the very head of all the hypnotics. Sulphonal is a white crystalline powder, but slightly soluble in water; given in doses of 1 to 4 grammes (about 15 to 60 grains) floated on water. It rarely disappoints expectations; it is least satisfactory in the more severe forms of mania. Sleep usually comes on within half an hour—seldom later than one or two hours, and lasts unbroken for six to eight hours. It may continue indeed for several hours in the forenoon, and not unfrequently it leaves behind it a quiet condition during the day. The sleep is perfectly rational, neither accompanied nor followed by unfavourable complications. Tolerance does not appear to become established, so that the dose (average 2 grammes) does not require to be increased. Comparative observations with methane, paraldehyde, &c., even in large doses, were favourable to sulphonal. Sometimes indeed it acted promptly where chloral had failed, and whilst chloral appears to be the only rival of the new hypnotic, sulphonal is free from the serious objections to the other drug from the side of the circulation. Inasmuch as sulphonal is comparatively slow but prolonged in its action, it is possibly but slowly absorbed (being so insoluble) and its action but gradually developed. It is possible the repeated small doses—say $\frac{1}{2}$ gramme every two hours—may diminish or completely remove conditions of excitement in the insane.—(*Centralbl. f. Klin. Med.*, 1888, No. 28, p. 497.)

GYNAECOLOGY AND OBSTETRICS.

BY R. STEVENSON THOMSON, B.Sc., M.B., C.M.

Electrolysis in Uterine Flexions. By E. H. Grandin, M.D. (*New York Med. Journal*, 30th June, 1888).—The writer claims for this treatment rapid dilatation of the obstructed cervix, and cure of endocervical catarrh and hyperesthesia when these are present, and as a result of this the disappear-

ance of dysmenorrhœa not to return. As internal electrode, Dr. Grandin uses the ordinary steel bulb-sound used for exploring the male urethra, the shaft of which has been insulated by means of a piece of rubber tubing. The patient is placed in the dorsal position, and the electrode introduced along the finger till it is stopped by the obstruction. The external electrode connected with the positive pole is placed over the fundus, and may be the ordinary sponge or flat electrode. The maximum strength of current used is that supplied by eight to ten freshly charged cells (what kind?) A weak current is used at first, and at any time only sufficient current is used to cause the electrode to work its way easily along the canal. The seance lasts about ten minutes, and the usual number required to produce the necessary dilatation is about ten. Thereafter the patient should be seen once or twice before each menstrual period for two or three months when she may be dismissed as cured.

Morning Sickness in the Husband.—At a meeting of the Obstetrical Society of Philadelphia, Dr. Hamill remarked that the occurrence of morning sickness in the husband, after the fact of pregnancy was known or suspected, he had frequently noted, but the case he was about to speak of was unique from the fact that the sickness appeared in the husband at such an early period of pregnancy. Two weeks after the appearance of menstruation for the last time, the husband had daily morning attacks, and not until it was time for the next menstruation had the woman any other evidence that conception had taken place. The husband's attacks continued for two months. During his wife's previous pregnancies he had suffered from like attacks, but not until he and his wife had both become aware of the existence of pregnancy.—(*New York Med. Journal*, 9th June, 1888.)

The Vaginal and Uterine Lochia.—Dr. Albert Döderlein, of Leipsic, has published some researches on the bacteriology of the lochial discharges of women, in both normal and diseased puerperal states. He finds that the vaginal discharge must be examined separately from that which originates within the uterus, the clinical importance of micro-organisms being very different in the two cases. The vaginal lochia always contains a multitude of germs of various kinds, and, if introduced into the bodies of animals, is capable of producing abscesses. The uterine lochia, on the other hand, contains in the normal puerperal condition, no germs whatever. When these appear, or at least soon after their appearance, a rise of temperature occurs, and when this latter has fallen, the lochia is again found free from germs. Its removal appears to be due to increased secretion and separation of pus cells. Healthy uterine lochia may be introduced into the bodies of animals without causing any harm; but when there is fever, and it contains germs, septic symptoms are produced in the animals. In some cases not merely germs but streptococci have been found in the uterine discharges of patients with puerperal fever.—(*Lancet* for May, 1888.)

Treatment of Shoulder and Other More Transverse Presentations by the Genu-Pectoral Position.—By E. R. Maxson, M.D., &c. (*New York Med. Journal*, 26th May, 1888).—The writer in his communication calls attention to this subject, which was originally introduced by him thirty years ago, by citing extracts from a paper read by Dr. H. M. Cutts, before the Washington Obstetrical and Gynaecological Society. Dr. Cutts says:—"Dr. Maxson recommends it (i.e., genu-pectoral position) for cephalic version, and so to him is due the discovery of this more desirable possibility." Dr. Maxson's plan is as follows:—The patient is made to kneel in the middle of the bed on folded quilts, 18 inches high, the face being brought down forward on to a pillow, so as to bring her back inclining downwards at an angle of about 45 degrees. The attendant then places himself on the side opposite to that on which the head is lying, and gently presses the shoulder back, if it is not receding by gravity alone, he extends the fingers so as to grasp the head and guide it to the superior strait. This movement is

assisted by manipulation from the outside with the other hand. The woman is then turned down upon the opposite side and the head steadied till one or two pains cause it to engage.

According to Dr. Cutts, the following advantages are secured by this position :—

1. The downward pressure of the atmosphere on the fundus uteri is, at least in part, equalised by the admission of air into the vagina.
2. We have the force of gravity to aid us. The weight of the child naturally drags the presenting part from the os uteri and pelvic cavity, and by so much relieves the impaction.
3. The abdominal cavity is elongated, putting the vagina on the stretch, thereby giving it a cylindrical character, thus aiding to throw the head into line with the superior strait.
4. The woman cannot, in this position, exert to any extent her voluntary muscles in bearing down.
5. We get rid, to a great extent, of the superimposed weight of the abdominal viscera and the resistance offered by the promontory of the sacrum, should any part of the child be impacted behind it.
6. The liquor amnii is much more likely to be retained until the version.
7. The uterus with its contents, recedes from the spine, and by force of gravity tends to release the abdominal muscles, and hence favours these manipulations.
8. It is more than probable that in this position the uterus will be found physiologically to contract less violently and relax more readily than when the patient lies on her back or side.

Drs. Cutts and Maxson both express surprise that this method should have found so little favour as it seems to have done.

The Treatment of Sterility and Obstruction in Dysmenorrhœa. By Thomas More Madden, M.D. (*Dublin Journal of Medical Science*, April, 1888).—The advantage claimed by Dr. Madden for his own dilator is that it expands the cervical canal from within outwards. In performing the operation, which is preceded by daily hot water syringing for some time—the time about a week after the last painful period is selected—the patient is anaesthetised, and placed in the left semi-prone position on a gynaecological table. The cervix being exposed by the duck-bill speculum, the anterior lip is seized by a strong vulsellum, and drawn down as close to the vulva as possible. The sound is next passed to ascertain the position of the uterus and the permeability of the canal. A metrotome is then introduced into the uterine cavity, and being expanded to such an extent as may be thought necessary, is withdrawn, so as to incise the cervix freely from end to end. The instrument is again introduced, and the cervix divided antero-posteriorly. The uterine cavity is then washed out with hot water to arrest haemorrhage and remove clots, and the dilator introduced. This instrument is opened and allowed to remain for a few moments, and is then withdrawn in an expanded condition, so as to tear asunder and expand the cut surfaces till the index finger can be introduced into the uterine cavity. The uterus is again washed out with warm water, and a tampon of cotton saturated in glycerine and carbolic acid is introduced, and left *in situ* for some days, so as to fill and distend the passage. After the operation the patient is kept in bed, and the vagina syringed daily with hot water for eight or ten days, pain being treated with opiates and poultices. After this period a flexible tube or uterine stem pessary is introduced, which should be worn for another month, when the patient may resume marital life with a fair prospect of subsequent impregnation, and an almost certain immunity from any recurrence of dysmenorrhœa.

The Treatment of Periuterine Phlegmasiae by Electricity. By Dr. Apostoli (*Bulletin Général de Thérapeutique*; *Brü. Gyn. Journal*, February, 1888).—The author concludes that, in the early stages of acute

periuterine inflammation, electricity in the form of a Faradic current of high intensity relieves pain and cuts short the acute inflammatory processes, and that the galvanic current is a valuable expedient, and can be used either as an intrauterine galvano-chemical caustic to bring about resolution in the sub-acute stage, or as a vaginal negative galvano-puncture, which may be employed with success in every degree and at every period in the chronic state.

Restoration to health is not guaranteed in every case, but the author believes that this method of treatment will relieve patients more rapidly and more effectually than any other.

The Diagnosis of Early Carcinoma of the Cervix Uteri. By Dr. Steatz (*Centralblatt für Gynäkologie*, January, 1888).—The author concludes that it is of the first importance that all practitioners should be cognisant of the earliest appearances of carcinoma of the cervix, as it is then that an operation may be performed with reasonable hope of saving the life of the patient. The points of most importance are—1. A recognition of the fact that in these cases there is a rapid transition from diseased to sound tissue, the line of demarcation being usually very well marked. 2. A slight difference in level between the sound and diseased portions of the cervix can always be discovered. 3. The malignant deposit appears usually as yellowish-white glistening elevations, scattered about the diseased portion, and giving the part a light yellow colour.

DISEASES OF THE THROAT.

BY DR. J. MACINTYRE.

Spontaneous Expulsion of a Laryngeal Polyp. Dr. Fraenkel reports a case of fibrous polyp, occurring in a man, which had long caused hoarseness and dyspncea. He refused tracheotomy, and on one occasion had a severe haemorrhage from the larynx, which was controlled by sub-cutaneous injection of ergotin. While sitting in bed a severe paroxysm of cough expelled the tumour.

[Dr. James Dunlop described a similar case in the Glasgow Southern Medical Society last year in which this rare occurrence took place.]

Laryngeal Phthisis.—Dr. M. Schmidt records fifteen cases in which he performed tracheotomy in this affection. In five a cure of the laryngeal symptoms was obtained. He states that in three cases a correspondingly favourable result followed in the lungs. He recommends that the operation should be performed before stenosis sets in, and is of opinion that it is necessary to give the larynx rest to affect a cure.—(*Revue des Sciences Médicales*, July, 1888.)

Epistaxis.—Dr. Geneuil, Madrid, recommends injections of freshly-expressed lemon juice into the nares, and considers it an excellent remedy, especially in bleeding depending upon disease of the heart and liver. He first washes the nostril free from clots with water, then freely injects the agent. It is further said that this solution acts satisfactorily where concentrated solutions of citric acid fail.—(*Polyclinic*, July, 1888.)

The Effects of Surgical Irritation on Non-Malignant Tumours of the Throat.—It has been asserted by some observers that benign tumours of the throat not unfrequently become malignant by the irritation produced by attempts at removal. One of the most important additions to the discussion has been made by Dr. Felix Semon. From replies to his inquiries, over one hundred observers have furnished details of their practice, and in these we find that 10,747 cases of non-malignant and

1,550 malignant tumours have been observed. Out of 8,216 operations, 32 are said to have changed in character, or about 4 per cent of the number. In this small proportion above 16 were doubtful, and the writer thinks that if all the facts were known perhaps a number of the remainder could also be set aside as having changed character owing to operative procedure. The inquiry was of an extensive nature, including observations from the leading laryngologists of the world and the question seems to have been definitely settled in this satisfactory way.—(Dr. Semon, *Internationale Centralblatt für Laryngologie*, July, 1888.)

Intubation of the Larynx.—An important discussion took place on diphtheria in Glasgow Meeting of the British Medical Association in August, and considerable attention was paid to operations of intubation of the larynx. Dr. Lennox Browne spoke of the difficulties of the operation, and dealt with the objections to it. He holds that (1) if the proper sized canula be used the calibre must be as great as the normal glottis, and the relative size of the intubation tube larger in proportion than the tracheotomy tubes usually employed. (2) If the tube be long enough, weighted, and have a bulge in the extreme wall, it will not slip beyond the constricted infra-glottic region; and further, the head of a tube used of the proper size will prevent slipping into the trachea. (3) That the passage of food, &c., into the windpipe might be overcome by an artificial lid or epiglottis, but in infants it is likely that the lid action of the epiglottis is merely secondary to the squeezing of the laryngeal vestibule during the action of swallowing. (4) In case of obstruction by membrane the tube can be removed and cleansed.

An excellent paper on this subject has been read at the Académie de Médecine. The author, Dr. d'Heilly, refers to the history of the operation and his own practice. He thinks that it should be done in all cases where the surgeon considers it dangerous or impossible to perform tracheotomy.—(*Revue Internationale des Sciences Médicales*, No. 4, 1888.)

The following are also worthy of note:—(1) Discussion of the British Medical Association reported in the *Journal*. (2) Dr. Joseph O'Dwyer in the *New York Medical Journal* for 30th June, 1888. (3) Dr. Jacquet, Paris; Dr. Caillot, Berlin; Dr. Lubet, Boston, in the *Revue des Sciences Médicales*, July, 1888.

Operations on the Triangular Cartilage of the Nose.—Dr. Greville Macdonald when operating for enchondrosis makes a linear incision from behind forwards down to the cartilage. With a respiratory the perichondrium is turned up and down sufficiently to expose the part, which is then removed by the gouge or saw if ossified. The flaps are next allowed to fall together and the fossa stuffed with iodoform wool. He claims that this method is better than Bosworth's, as in the latter a non-secretory non-ciliated cicatrix is substituted for normal membrane.—(*British Medical Journal*, 15th September, 1888.)

DISEASES OF THE EAR.

BY DR. WALKER DOWNIE.

The Influence of Pilocarpine upon the Mucous Membrane of the Tympanum. By Dr. W. Kosegarten, Kiel.—When recommending the use of this drug as of special service to aurists, in 1885, Politzer considered that it was of most service in recent cases of labyrinthine disease and in syphilis of the labyrinth which had not become chronic. He found it effected no improvement in hereditary syphilis, nor in dry catarrh of the middle ear complicated with disease of the labyrinth. Dr. Kosegarten, however, thinks that it is very useful in the latter cases—in so-called dry catarrh of the middle ear complicated with disease of the labyrinth—and that Politzer

failed to get good results in such cases by abandoning the use of the remedy before a sufficiently long trial had been made. When the treatment is borne well Dr. K. gives daily injections, each averaging one centigramme. This he employs for six weeks, and if there is improvement by that time the treatment is continued till the end of the third month. The drum-membranes, before treatment, were thickened, dull, white, and hazy. Those under the influence of pilocarpine, though increasing the circulation in the middle ear causing absorption of the morbid deposits in the tissues of the *membrana tympani*, became almost transparent. The sclerosed tissues lining the tympanum and covering the ossicles he considered similarly affected, and by becoming more elastic and yielding led to increase in hearing power which in some cases was very marked.—(*Archives of Otology*, June, 1888.)

Lactic Acid in Suppuration of the Ear.—Aysagner here corroborates the statements of Moorhof regarding the efficacy of lactic acid in fungous caries of the auditory canal and middle ear; and shows that the acid only attacks decayed tissues. Fungous growths of the tympanum, granulations occurring in the course of purulent otitis media, polypoid vegetations and caries, and necrosis of the bony walls, accompanied by fungoid growths and granulations, are all much benefited by lactic acid. But in simple inflammations of the tympanum, acute or chronic, it produces no beneficial effects whatever. Aysagner begins with solutions of 1 to 5, and gradually increases the strength until he is able to use the pure acid. The pain following its use is slight. The tissues touched by the acid turn gray in colour, shrink up, become covered by a whitish cicatrical membrane, and eventually disappear.—(*New York Medical Journal*, 18th August, 1888.)

Books, Pamphlets, &c., Received.

A Text-Book of Physiology. By M. Foster, M.A., M.D., F.R.S. With Illustrations. Fifth Edition, largely revised. Part I. London : Macmillan & Co. 1888.

Notes on Surgery for Nurses. By Joseph Bell, M.D. Second Edition. Edinburgh : Oliver & Boyd. 1888.

Anatomy. Part I : The Upper Extremity. Catechism Series. Edinburgh : E. & S. Livingstone. 1889.

The Transactions of the Medico-Chirurgical Society of Edinburgh. Vol. VII. Session 1887-88. Edinburgh : Oliver & Boyd. 1888.

The Illustrated Optical Manual. By Surgeon-General Sir T. Longmore. Fourth Edition, enlarged, and illustrated by 74 Figures. London : Longmans, Green & Co. 1888.

The Fatal Illness of Frederick the Noble. By Sir Morell Mackenzie. London : Sampson Low, Marston, Searle & Rivington. 1888.

Nitrous Oxide and Ether. By Frederic Hewitt, M.A., M.D. London : Baillière, Tindall & Cox. 1888.

On the Surgery of the Knee-Joint. By C. B. Keetley, F.R.C.S. London : Baillière, Tindall & Cox. 1888.

Lectures to Practitioners. On the Diseases of the Kidney Amenable to Surgical Treatment. By David Newman, M.D. London : Longmans, Green & Co. 1888.

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ORIGINAL ARTICLES.

RAYNAUD'S DISEASE, OR LOCAL ASPHYXIA AND SYMMETRICAL GANGRENE OF THE EXTREMITIES.

By THOMAS FINDLAY TANNAHILL, M.B., C.M.,
Medical Officer H.M. Convict Prison, Borstal, Rochester, Kent.

FEW cases of this disease have as yet been recorded. It may well be doubted if we yet know all the signs and symptoms of the affection; and the pathology of the subject has not even been attacked owing to the non-fatal termination of the illness, &c.

The purpose of this clinical sketch is to make the disease more widely known, so that no case shall escape recognition—a common occurrence in the identification of a new species. The fugitive character of the affection, the graphic account given by the parents, and perchance the entire absence of any signs when the medical man reaches the case may cause the latter to regard the statements as purely imaginative.

The prominent signs and symptoms of this affection are as follows:—Black patches distributed symmetrically over the body, generally confined to the extremities; the parts affected are cold to the touch, and to the patient are cold and painful; the black patches may prove of very temporary duration, or they may remain, and end as patches of necrosis. The disease is sometimes associated with paroxysmal haematinuria.

Patient's History.—Alice N., born 20th January, 1881;
No. 6.

always of delicate health. When about two years old the child began to suffer from pain in the feet and legs. In the spring of 1883, after exposure in a perambulator, her legs and feet became red, and the mother thought it necessary to give the child a warm bath. Shortly after the bath a large black patch appeared on each arm, on the outer aspect above the elbow. The patches had disappeared before bedtime. In March, 1883, a black patch appeared, said to cover the whole of one arm, the remaining surface of the body being perfectly free. From this time onward till July, 1883, she had several attacks, in one or more of which the ears were affected. During this same month she had, for the first time, an attack of haematinuria, subsequently proved to be paroxysmal. From then till now she has had numerous attacks of local asphyxia, and repeated attacks of paroxysmal haematinuria. The two affections were never observed to occur simultaneously, but always alternately.

On several occasions I received notice that the disease had appeared, but the signs had disappeared when I reached the patient. A favourable opportunity occurred in October, 1886, when she had another attack of asphyxia of longer duration, evidently of greater severity than any preceding attack, for two of the patches remained and became gangrenous. I was not acquainted with the disease as described by Raynaud, and struck by the specific characters, I sent a note to the *British Medical Journal*, describing the affection under the title of "Purple Suffusion of the Extremities, alternating with Attacks of Hæmatinuria." Of the 28,000 medical men in this country, one man—Dr. James Finlayson, of the Western Infirmary, Glasgow—noted it, and took the trouble to write and inform me that I had to do with the disease characterised by Raynaud.

The facts noted during the attack of October, 1886, were as follows:—The feet, as far as the ankles, and the hands were of a deep purple tint. The colour was equally diffused, and did not disappear on pressure. This discolouration passed off in about 30 minutes, and it passed off in a peripheral direction, the fingers and toes being more or less livid when the hands and feet were nearly normal in colour. On the left foot two patches of gangrene occurred, situated on the little toe and on the adjacent toe. The necrosis was superficial, but well formed scars remained, the gangrene in this instance being asyminetrical.

She had another attack on 22nd June, 1887, not followed by gangrene.

In the spring of 1888 she was stripped to have a bath, and

while standing naked she had an attack, varying in character from preceding attacks. Two large patches appeared, one on the left forearm, extensor surface, just above the hand, and one below the knee, inner aspect of the leg. The mother could not say if the two patches were confined to the left side of the body. These patches had the appearance of large scalds, while within the apparently scalded areas were numerous white spots projecting above the general surface.

The child has had at least twenty attacks of local asphyxia; only one of the attacks presented necrosis. The attacks being so common, the father is able with some certainty to predict an impending attack: the eyelids become bloodless, and the eyeballs and lips assume a yellowish tint. I have myself noticed a yellowish tint of the conjunctivæ and of the face during the progress of the affection; possibly the signs noted by the father have a real premonitory significance. All the attacks seem to have a distinct relation to the action of cold, following exposure either to cold winds or on being stripped.

General Condition of the Child.—Fairly well grown, and of average intelligence. The mother thinks her child slow of understanding; but this is not very noticeable, and may be explained by the absence of older children, whom she might imitate, and her repeated absences from school in stormy weather. Organs of the body healthy. As in children, the action of the heart is very marked; irregular in time, the contractions varying from 13 to 16 beats per 10 seconds; the pulmonic second sound is accentuated. Sphygmographic tracings show very markedly this irregularity of the pulse. Raynaud states that venous pulsations occur in the retinæ, but this pulsation is of normal occurrence, and can afford no explanation of the pathogeny of the disease.

Family History.—The parents have no blood relationship. The father is 44 years old, and the mother 38 years. Six children have been born, of whom three have died—the second, the third, and the fifth. The second child lived only six weeks, was very delicate, and had a yellow skin from birth till death; the third was still born, possibly from prolonged labour in the hands of a midwife; the fifth lived four months, was weak from birth, suffered from "green motions" and thrush, and succumbed to a large abscess in the thyroid. The father is a strong, healthy man. The mother has never had any illness; all her organs are healthy; but her face is very florid, and her children do not thrive at the breast.

Mother's Family History.—Two sisters only; both died of tumours. Father and mother alive, the latter in good health;

the former has had several fits, and his father was paralysed on one side.

Father's Family History.—Mother alive and well; father died aged 61, of sugar in the urine (diabetes); he used to be a very stout man, but emaciated considerably towards the end of his life. There were six children—the father of the child under discussion, other four brothers, and one sister. One of the brothers died of "rheumatics of the brain;" all the others are married, have families, and, with the exception of the family immediately under discussion, are quite free from local asphyxia.

Remarks.—The name proposed by Raynaud for this disease is a purely provisional one: local asphyxia may be a symptom merely or it may be the disease itself. Collating the symptoms of the numerous attacks in this child may, in the absence of numerous individual cases, show the constant features of the affection. These symptoms and signs are—Purple patches, pain, cold sensations, and chill of the parts affected, the outbreak always associated with exposure to cold, and perhaps the signs, already mentioned, observed by the father to precede an attack.

Stass, an American writer, states that, after the occurrence of pain, ischæmia takes place, then cyanosis or erythema. In this child's case the "premonitory" signs observed by the father appear of an ischæmic nature; and what appeared to the mother as "scalds" were doubtless erythematous patches, with ischæmic islets dotted over the surface of the red patches.

Professor Smith Shand believes there are three stages in the well developed disease—viz., ischæmia, cyanosis, and erythema. From the facts of this case, I also regard ischæmia as the initial stage; but there is some reason to suppose that the greater or less severity of the ischæmia will alone determine whether the next stage shall be recovery with erythematous reaction, or cyanosis passing on to gangrene. I do not regard erythema as a real stage in the evolution of the disease; if the ischæmia be of long duration, cyanosis will follow, and possibly gangrene, without erythema; if the ischæmia be of short duration, no injury is done to the tissues, and erythematous reaction will occur in consequence of the recovery.

Cold seems to be a powerful factor in the etiology of the affection, but from the rare occurrence of the disease, and the universal operation of cold, it is needful to assume that the subjects of the disorder are more than ordinarily sus-

ceptible to the influence of cold. This we know is notoriously the case when we regard the varied sensations, of different individuals, experienced under identical degrees of cold. Dr. Horrocks, of Guy's Hospital, informed me that the experiment of dipping parts of the body in cold water was tried on a patient suffering from this affection without any result. This could only show either that the stimulus was too weak, or that the susceptibility is not in constant operation. That this susceptibility is not constantly present would appear probable from the following facts:—A medical friend, of very nervous "temperament," is unable at times to wash his hands in cold water, owing to the fact that his hands become perfectly bloodless after the use of cold water. His nervous system is so highly strung that hallucinations of sound develop under the pressure of hard work and anxiety. In another case, of a prisoner suffering from delirium tremens, profound ischæmia of the right hand occurred during the excitement. In these two cases it may be fairly assumed that the susceptibility is due to instability of the central nervous system. In Raynaud's disease the distribution of the patches indicates instability of the peripheral nerves.

Hitherto the prognosis of this affection has been most hopeful, but this deduction may prove false, being founded on a very narrow basis. A few days since Dr. Watson, of Rochester, communicated to me the facts of a case he had in St. William's Hospital last month. Scarlet fever broke out in a house, and one of the children was sent to hospital suffering from typical scarlet fever. The house was inspected, and another child was found who had suffered a slight attack of the same fever, and in whom desquamation was taking place. This was only the fourteenth day of his illness, but he had been playing all day in the open air with his hoop. On the calves of his legs a purple patch appeared in the morning. The case being infectious, he was sent to the hospital, and little importance was attached to the patches on the calves. The temperature of the child remained normal, and his general condition appeared excellent. Other purple patches appeared, and extended to the iliac crest. Death took place suddenly at 2 A.M., thirty-six hours after admission. Unfortunately no *post-mortem* was made. This, I believe, is the first recorded death from local asphyxia.

CASE OF BULBAR PARALYSIS WITH AFFECTION OF OTHER PARTS OF THE NERVOUS SYSTEM.

By JOHN RITCHIE, M.B.

(*Read before the Glasgow Medico-Chirurgical Society, 2nd November, 1888. For Discussion, see Report of Society.*)

W. C., who is now about 18 years of age (though he looks not more than 14 years old), came first under observation on the 1st April, 1886. He stated that he did not speak as distinctly as formerly, having difficulty, as he said, with "big words" and when excited.

Personal History is unimportant.

Family History.—Careful inquiries were made by me of the lad's mother, but no definite information could be obtained. It was not, in fact, until October, 1888, that a sister who had not formerly been interrogated, supplied the following information. Patient is the youngest of a family of ten. The first, fourth, and tenth alone survive. The second, third, and fifth died in early childhood of bronchitis, diphtheria, and bronchitis. The sixth, seventh, eighth, and ninth, were still-born, at (as is stated) the full time.

Patient's mother was the subject of some affection, said to have been rheumatism, which crippled her to such a degree that she used to move about the house by the aid of a stool. She died lately, but I do not know the cause of death. The father is very intemperate.

Present Illness.—The patient, who was then a message boy, stated that one cold day in January, 1886, he was, in accordance with his usual custom, carrying a large parcel on his head. He steadied the parcel with his right hand. After some time he noticed that his hand was swelled and stiff, but not painful. He attributed this, and what he regarded as a similar condition in the right cheek, to cold.

This state of matters has persisted up till his calling upon me. He maintains that when the hand swells, he stammers, and "can't get out the word." His friends, however, deny this assertion.

There is slight twitching of the facial muscles on the right side, when he begins to speak. The swelling in the face, of which he makes mention, must be attributed to the decayed state of his teeth. The pupils are unequal and sluggish, the left more dilated than the right, but his sight seems to be of ordinary acuteness. His hearing is good. Examination of the right arm detects nothing abnormal. Nothing of a positive

nature was discovered in the thoracic or abdominal organs. On all occasions on which the urine was examined, it was found normal.

The patient saw me at occasional intervals up till October, 1886.

On 25th October Dr. C. Fred. Pollock kindly made an ophthalmoscopic examination. He noted that the right pupil was larger than the left, and that the right disc was pale, as if congenitally. The eyes were otherwise normal.

On 29th October the lad was again carefully examined by me. The occasional hesitancy of speech still continued, and the only new feature in the case was tenderness along the spine, from the fifth to the ninth dorsal vertebra. Under external applications this tenderness disappeared for a time. He was put on a mixture containing iodide of potassium, but it is very doubtful if he took it regularly. For a few months I saw very little of the patient, but on the 27th of February he called on me. The note then made is, "Condition remains as before, but is in every sense aggravated. The stammering is much worse, and the speech 'scanning.' He has a sensation in the left leg similar to that experienced in the right arm. There is no other change, except that he has severe headache and giddiness at times, and that the spinal tenderness is again present. There is also some dimness of vision." Dr. Pollock again examined the eyes, and noted "Reads Snellen IX at 3 yards with each eye. Left pupil considerably larger than right." Dr. Pollock suggested that the disease might be of cerebral origin.

On 2nd March, 1887, the patient at my request consulted Dr. Alex. Robertson. Dr. Robertson, who made a very careful examination, concluded that there was degeneration in the medulla oblongata, involving the roots of the seventh and ninth nerves. He suggested that the abnormal sensations in the arm might be due to irritation of the nerve fibres going to form the brachial plexus, and advised that the lad should not carry parcels on his head. Dr. Robertson also suggested that the dilatation of the pupils might be due to irritation spreading to the area of origin of the third nerve. He advised a series of fly blisters to the back of the neck, and perchloride of mercury, iodide of potassium, and cinchona, internally. After the irritation subsides, the constant current is to be applied to the spine.

15th March.—Patient has been taking his medicine since the 3rd of March. He now says that the feeling (of swelling) in the arm and face has not manifested itself since taking the

medicine recommended in February, although formerly this sensation was present several times every day. The dimness of vision has not troubled him. His speech is very much improved, in the opinion of all who know him. Headache is less frequent. He says he feels his legs as strong as ever, and he asserts that he has never had any abnormal feeling in the right leg. The appetite is improved, and he looks very much better. He has left his situation, as otherwise he would have had to carry parcels as formerly.

On 7th April he felt the "swelling" in his hand again, and a fly blister was therefore applied to the nape of the neck. About five days thereafter, the speech was much improved, and he felt stronger. On protrusion of the tongue, there was noticed a tendency to fibrillar movements. There was also twitching of the right angle of the mouth. About this time he was taking a hearty boyish interest in the Boys' Brigade, and his intelligence was perfect.

On 30th May my note is:—"The patient says he feels better, but his speech is worse and the tongue still trembles. He has no peculiar feeling in arm or leg now. The general health is better."

Up till this time the medicine was taken with some approach to regularity. He was said to have improved very much by a residence in the country, but I lost sight of him for months together, and learned that his father would not allow of any form of treatment. Electricity, therefore, was never employed. For about a year I heard no more of him.

18th October, 1888.—I saw W. C. to-day. Speech is not more affected than on some former occasions, but he cannot now protrude his tongue, all efforts to effect this movement having the effect of pushing the organ to one or other side of the mouth. He swallows fluid when asked to do so, but his friends say that he has some difficulty in taking food.

There is total blindness of the left eye, and the sight of the right eye is greatly impaired. Mental torpor is very pronounced, and he seems at times to be the subject of delusions. His gait is very feeble, like that of lateral sclerosis. Ankle-clonus is present in both legs, but is more marked in the right leg. The knee-jerks are somewhat exaggerated. The muscles of both legs are rigid. He has frequently a sensation as if he were defecating when such is not the case.

On 24th October Dr. C. Fred Pollock kindly called on patient and examined his eyes. The following is the report:—

"It is essentially a case of atrophy of the optic nerves.

"*Right Eye.*—With this eye he counts fingers at the

distance of $2\frac{1}{2}$ feet or nearer, and now and then guesses correctly at the distance of one yard Snellen's letters, which should be read at 50 feet. The pupil hardly reacts at all to strong light and complete darkness. It is somewhat dilated. The disc is grey and almost regular in outline, and the retinal vessels are of full size. The fundus is otherwise normal.

"Left Eye."—He claims some power of distinguishing light from darkness, but I could not satisfy myself that even that amount of perception of light was present. The pupil is moderately dilated, more so than the right one, and does not move at all under changes of light and darkness. The disc is whitish-grey, and the border is slightly irregular, while there is also a slightly atrophic hollowing of the whole disc. The retinal vessels do not seem affected, and the fundus is otherwise normal. The tension of both eyes is normal.

"There was considerable difficulty in getting the fundus examined, owing to his inability to keep the eyes directed long to one spot, and a great tendency to close the lids."

On 31st October, incontinence of urine made its appearance.

I add no lengthy remarks on this case, but may state that one writer says the disease is more common amongst women than amongst men, and that Gowers says the opposite of this. Dr. Gowers also says: "In chronic bulbar paralysis, due to degeneration, ophthalmoscopic changes are extremely rare. Unilateral atrophy was once seen by Galezowski, and Robin quotes a case from Dianaux of rapid atrophy of both nerves in the course of the affection in a man aged 67. It was accompanied by transient paralysis of one sixth nerve. Sight was lost completely in two months, but considerable subsequent restoration of vision, up to $1\frac{1}{10}$ th, occurred."

I may be allowed to add, that on the suggestion of Dr. M'Call Anderson at the meeting of the Medico-Chirurgical Society, mercurial inunction has been begun on my patient; but it is too soon as yet to look for any results.

A CASE OF SCLEROSIS OF THE SPINAL CORD.

By GEO. S. MIDDLETON, M.D.

(Case shown at the Meeting of the Medico-Chirurgical Society, on 2nd November, 1888.)

J. C. first came under my care at the Dispensary of the Royal Infirmary on 19th January, 1886, complaining of unsteadiness in his gait. He was then 28 years of age, and a compositor to

trade. Three years before, he began to notice that his right foot, when he was tired as by walking, was scarcely under his control, so that in walking he lifted it high, flung it out from him, and staggered in his gait. As time passed on, and despite of treatment at the Edinburgh Royal Infirmary, under Dr. Grainger Stewart, this affection had persisted and increased in severity. After a long rest he was comparatively well, and could walk fairly steadily, but exertion always brought on the difficulty above described.

He walked on a very broad base, and could not confine himself to a single plank, nor could he stand steadily for any length of time. There was no paralysis of the legs. The knee-jerk was exaggerated on both sides, but ankle-clonus could not be elicited on either side.

He had never had any pain in the back or legs, nor any deficiency of sensation, and no dysæsthesia except a feeling of weariness, first observed in the right leg but then affecting the left as well. There was no girdle sensation. The pupils were equal in size, and responded both to light and to accommodation. There was no tremor of the head, body, or limbs. The eyeballs were unsteady, but did not present the quick jerk of nystagmus.

He had no complaint to make of his arms, and the grasp of both hands was good.

He did not consider his speech affected, but it was noted that there was a thickness and slowness of utterance, which he considered natural.

There was no specific history.

He was put upon the iodide of potassium, and on 13th February it was noted that he could stand more steadily and even do a little at the single plank. Ankle-clonus was then made out, but not to a marked degree.

On 23rd February he was put upon one-sixth of a grain of the nitrate of silver thrice daily, with galvanism, and on 27th April he reported that he was improving. At that date he complained, for the first time, of slowness of micturition.

When seen again, on 3rd July, 1886, he reported that he had been very busy at his work, getting little rest and little sleep, being often 15 hours on his feet daily. Though kept on at his job, he knew that he was not nearly such a smart compositor as he had been, chiefly, he believed, because of increasing shortsightedness. He did not observe any loss of power in his hands, but he occasionally (not often) felt cramps in the middle, ring, and little fingers of the right hand. For rather more than a year he had had a feeling of weariness in

the right arm, without loss of power or unsteadiness. It began when he was transferred from "reading" to "composing." He reported that on going up a stair his right foot was very heavy to lift, while the left was not so; and that on going downstairs he tended to fall head foremost, unless supported, and this tendency he also attributed solely to the right leg. The staggering gait was much exaggerated when he walked with his eyes uplifted, or backwards. With his feet closed and his eyes shut, he could stand fairly steadily for a very considerable time after he once had got fairly balanced.

It was then learned for the first time that he had for more than a year suffered from diplopia, unless he "gripped his eyes close together."

He still complained of slowness of micturition, and also of a peculiar pain in the meatus before making water. During micturition the stream often ceased for a little, and this pain would come on again before the stream started afresh. His bowels were regular.

There was nothing else now to note save that his right leg occasionally was seized with tremors when he was in any way excited.

Since he had been last seen he had been using the faradic current with almost constant regularity daily, but he had discontinued the use of nitrate of silver for some time. He believed that hard work was interfering with his recovery, as he always felt very well on getting up in the morning. He was put on the iodide of potassium with liquor arsenicalis.

In order to give him the advantage of rest in bed, recommended by Dr. Donkin very favourably in certain cases of spastic paralysis (*Brain*, October, 1885), he was advised to enter the Western Infirmary, under Dr. Gairdner, which he did on 19th August. In the interval there had been a more rapid increase of the heavy, weary sensation in the right leg on exertion, and after walking any distance the leg was "quite useless." When at his work he had to stand for the most part, and then he often noticed that the right leg jerked and twitched spontaneously. Three weeks before admission the left leg began to be affected in the same way as the right after walking, but not to the same extent, and never when standing at his work. Shortly after his admission to the infirmary, Dr. Reid reported on his eyes as follows:—"In both eyes the optic nerves are suffering from white atrophy with contraction of the discs. The vessels are small in calibre and somewhat veiled. The area of sensibility of the retina is nearly normal for white, but that for colour is limited, more

especially in the right eye. The centre of right disc is somewhat pinkish."

About the end of August the girdle sensation became very distinctly developed. It was not continuous, but for two or three weeks he had daily for an hour or more a feeling as if a cord were tied tightly round his waist. Thereafter this sensation entirely disappeared during the remainder of his stay in hospital. While there, spontaneous jerkings of the legs while in bed were frequently observed, and the ankle clonus was very readily elicited; very commonly on setting his feet on the cold floor of a morning, the clonus immediately began, shaking his whole body. His temperatures were always normal.

On 1st November Dr. Reid reported on his eyes as follows:— "The staphyloma posticum, characteristic of near sight, exists in both eyes. The right nerve is atrophied, the vessels are contracted in calibre, especially the arteries. The vision of the left eye is nearly up to the normal standard of acuteness. With the right eye there is a dimness, objects being rather veiled, but still he is able to read moderately sized type. Field of vision for white light in both eyes normal. Double vision when eyes look forwards and downwards, but the images are parallel, and it may be accounted for by insufficiency of the inner recti muscles."

When he left the hospital on 31st December, 1886, he considered himself much improved. His gait continued very unsteady, but he was able to walk on three planks better than he had been at one time, and the jerkings and clonus were not so marked as they had been, while there was no girdle sensation and less trouble in micturition.

His treatment had been by rest in bed; for the first six weeks he spent fully 22 hours daily in bed, and for the next six weeks about 18 hours daily. For two months he had been on silver, and for the next two on the combination of iodide of potassium and perchloride of mercury.

Since he left the infirmary I have seen him only occasionally, as he found that walking up to the dispensary did him harm. His condition to-day (30th October, 1888), is practically the same as above described.

His gait is more like that of ataxia than of any other nervous disease, but he can stand very steadily with his feet close together and his eyes shut. On turning in his walk he experiences great difficulty in keeping his balance, as he has then a feeling of "swimming in the head." He has at no other time anything like vertigo. He feels his legs stiff very

frequently, but there has never been observed any spastic rigidity or contracture. The knee-jerk remains exaggerated, but ankle-clonus is elicited in only a slight degree.

He has now no complaint to make as to his arms, neither weary feeling nor cramps, possibly because he has been so long off his work. His writing is good.

There is no anaesthesia, and there has been no recurrence of the girdle sensation since August, 1886. He has still, at times, the same trouble with his urine, but he has never had any increased frequency of micturition, and never incontinence. Bowels costive.

There has never been any feeling of formication, pain, or tremors.

There is no loss of flesh.

His speech presents the same peculiarity as was noted at his first visit, and he is now of opinion that it is abnormal, and also that it has at times been worse than it is now.

He can offer no explanation of the cause of his affection. After leaving school, at the age of fourteen years, he was a compositor for eight years, and then a reader in the *Scotsman* office for four years. From that time till he entered the Western Infirmary he acted mostly as a compositor, but sometimes as a reader. About six and a half years ago, when acting as reader, he was affected for several months with "twitching" at the right angle of the mouth. The attacks were frequent daily, but each attack lasted only for a minute or so, and consisted first of a feeling of heat at the part and then of a twitching, which, however, he does not know was visible to others. It affected him so that for the moment he lost the power of speech altogether.

He never suffered from lead colic or from wrist-drop.

He was married before he was nineteen years of age, and has a family of five healthy children. His wife has had no miscarriages. He was, perhaps, immoderate in sexual indulgence in early married life, but he never suffered from any form of venereal disease.

At the time he came under my care another compositor was attending the dispensary for a nervous affection resembling disseminated sclerosis, and it has occurred to me at various times that possibly lead poisoning might have something to do with these cases, as no cause could be made out in either. But in neither of them were the symptoms at all like those recorded hitherto as due to plumbism, and neither of them had ever suffered from wrist-drop or from colic.

Owing to inability to refer this case to any of the well

known system-diseases of the spinal cord, in the billet I have described it simply as sclerosis of the spinal cord. It is, however, questionable if even that is correct, as the history of facial twitching with loss of speech, the character of his speech, and the condition of the eyes raise the question of cerebral disease as well. I am rather inclined to believe that there may be multiple lesions. I shall be glad to hear the opinions of members in regard to both the diagnosis and the treatment.

BREAKDOWN OF THE PRESENT HOSPITAL SYSTEM —THE FREEDOM OF THE HOSPITAL CLAIMED.

(Concluded).

BY J. FRANCIS SUTHERLAND, M.D.,
Surgeon to H.M. Prison, Glasgow.

(Read before the *Medico-Chirurgical Society of Glasgow*, 5th October, 1888.)

Hospital Finance.—Another reason for a change in the mode of administration and management is the financial position of the hospitals. Reform in this direction would lead to what is much wanted—uniformity; and uniformity would in this, as in other departments, bring about economy. The existence of so many small hospitals on a separate and independent basis is productive of great waste, and under any scheme providing a central authority most likely many of these small institutions would not be allowed to have a separate existence, but would form part of a large hospital. Of course care would be taken to prevent this centralisation being carried too far. When I speak of small, I refer to the large majority having less than 50 beds.

From this table (VI)—constructed with the object of showing the number of hospitals and their accommodation in the eleven largest cities and towns in the kingdom—you will see that of 201 hospitals in these towns, 50 per cent, or 105, have less than 50 beds, and 16 per cent less than 20 beds. Think, for a moment, of the great saving that would be effected if even 30 per cent of these formed part of a large or moderately large hospital—of any hospital with 50 beds and over. Every one of these small establishments requires a separate staff salaried off the funds. The saving effected in this way, not to be despised in these

times, would be utilised for extending the usefulness of the hospital. In the annual reports of our city hospitals, it is invariably stated that the hospital is too small to receive all who admittedly stand in need of its benefits, and, what is of equal significance, that the ordinary income falls considerably short of the ordinary expenditure, and this in spite of unsparing efforts to make both ends meet. I need not attempt to enumerate all the commendable agencies at work for the purpose of operating on the hearts, consciences, and pockets of the upper, middle, and well-to-do classes; in short, of all who feel generously disposed. Their number is legion. I may be permitted to mention, among many devices, ingenious and otherwise, the "snow ball" and the calico ball, musical festivals, &c.

TABLE VI.

	500 Beds and above.	300 and under 500.	200 and under 300.	100 and under 200.	50 and under 100.	20 and under 50.	10 and under 20.	Under 10 Beds.	TOTAL.
London,	4	3	7	12	17	38	15	2	98
Dublin, . . . . .	...	1	4	8	4	5	1	...	23
Liverpool and Birkenhead, . . . . .	...	...	2	2	4	6	2	3	19
Manchester and Salford, . . . . .	...	...	1	2	5	3	...	1	12
Glasgow,	1	1	...	1	2	2	1	1	9
Edinburgh and Leith,	1	...	...	...	3	2	...	2	8
Birmingham, . . . . .	...	...	1	1	2	4	...	...	8
Belfast, . . . . .	...	...	1	...	...	9	1	1	12
Sheffield, . . . . .	...	1	1	1	...	2	...	2	6
Leeds, . . . . .	...	...	1	...	...	1	...	1	3
Bradford, . . . . .	...	...	1	...	1	1	...	...	3
	6	6	18	27	38	73	20	12	201

What is the outcome of all these praiseworthy attempts to have the balance on the right side? In not a few instances there is a big deficit to be faced. You will have some idea of the unsatisfactory financial position of our great city hospitals from the following table, which refers to 31 hospitals, with 4,540 beds. The current expenditure is £226,901, and the deficit £29,408, or 13 per cent. In the case of all the Glasgow hospitals, with one exception, the balance is on the wrong side, and amounts to 14 per cent of the total expenditure. Sheffield alone of the seven populous centres has a clean bill, but then it provides only one bed for every 830 of its inhabitants, whereas Glasgow provides one for 590, and Liverpool one for 580. These deficiencies in revenue cripple

in great measure the utility of the hospitals, and lead, as in the case of London, to the closing of wards with no less than 3,000 beds.

TABLE VII.

	Popula- tion.	Hospitals and Beds.	Income.	Expendi- ture.	Deficit.	Surplus.	Total No. of Beds.
Glasgow and Suburbs, . . .	750,000	11. 8 1,265	£41,379	£50,150	£8,771	...	1,273
Liverpool and Birkenhead, . . .	693,000	7 924	43,805	50,376	6,571	...	1,197
Sheffield, . . .	316,000	4 371	17,450	16,629	...	£821	380
Manchester and Salford, . . .	600,000	6 678	38,339	39,433	1,094	...	957
Birmingham, . . .	440,000	4 518	26,005	32,577	6,572	...	624
Edinburgh and Leith, . . .	318,000	2 784	31,335	37,736	6,401	...	1,018
Total, . . .	3,177,000	31 4,540	£198,313	£226,901	£28,409	£821	5,649

These deficiencies are met in a variety of ways—in some instances by swallowing up, in whole or part, donations, legacies, &c., bequeathed during the year, in others (and this is serious) by operating on the Stock or Capital Account; and in not a few cases by borrowing from the bank. It has been well said by an authority in Glasgow that "a hospital fund cannot be considered in a satisfactory condition till the administrators of it are relieved from the apprehension of trenching on capital or getting into debt." This is not a healthy state of affairs, and all our hospital managers are not animated by the hope which inspires the Committee of the Stanley Hospital, Liverpool, who have a debt of £3,000 on an expenditure of £6,000. The Committee are said to be "working under this big hope, which is like a sun, and it is born of the remembrance of the repeated goodness of the Council of Liverpool, and it is this—that next year the Council will again generously and patriotically lend the Stanley Park for a great gala," by which they hope to net £5,000. This is one way of *hoping* to get rid of a present oppressive responsibility, but it is much to be feared that suns like these are not likely to loom even through the mist on the perplexed gaze of committees of all the burdened hospitals spoken of. If anything will open the eyes of those who stand out against accepting assistance in the shape of Parliamentary grants, it is the unsatisfactory financial position revealed by these figures, and all the more so as the hospitals are admitted to be insufficient for the wants of the community. The

burden on the national exchequer would be trifling, and grants-in-aid, as an encouragement to the present system of maintenance, would not be objected to by voluntary subscribers, who would be stimulated rather than hindered in their giving, by the knowledge that under a well organised hospital system no suitable case of genuine suffering would be neglected for want of room. This is something to look forward to. I am satisfied, however, that if the remedy for the present state of affairs is to be found in local taxation, then, while the incidence of taxation remains as it is at present, a heavy burden would fall on the ratepayers, and there would undoubtedly be an end to philanthropy, which has done so much for the hospitals during those centuries that have elapsed since the erection of many, by the gifts of pious and generous benefactors.

If the parochial hospitals are divorced from the poorhouse and made part of one great system, then I think the treasury subventions, amounting to £20,000 for medical relief, and the £37,000 furnished by the church, should be claimed and applied for the upkeep of the hospitals. It is not evidence of enlightened views that at this time of day distinctions of an invidious character should be made between people suffering from grave diseases, whether acute or chronic, with the result that thousands obtain rated hospital privileges through the door of pauperism. There may be differences between the class of people in a poorhouse hospital and in an infirmary, but there is none between the diseases that afflict both. Perhaps it would be but right to say that while these distinctions are countenanced, there are many persons who are friendless and are forced to seek the workhouse hospital, who are as respectable, and whose birth has been as gentle as many to be seen in the wards of our large hospitals.

Before leaving the financial question, it might still further be improved by establishing pay wards. At all events the pay wards should be regulated so as not to be a burden on the general funds. I do not share the views put forward by those who believe in having separate pay hospitals. Pay wards have worked well in connection with the Edinburgh Fever rated hospital, and other hospitals, in this country and abroad, and I fail to see why under proper management the system should not work equally well in connection with general hospitals. Bailie Russell, the Convener of the Edinburgh Health Committee, and Chairman of the Hospital Committee, writing me *à propos* of this matter, says—"The hospital is not worked in a mean spirit, though no waste is allowed, and it is popular

with the upper and middle classes. When members of these classes send their children to a public instead of a private ward, they almost always send us donations (voluntary) of from £2, 2s. to £35. Last year in payments and donations we received about £500." There is in every large town a numerous class with limited means, who would willingly pay for their treatment in the pay ward or the private ward of a public hospital, but who would not care to seek admission by means of a subscriber's line, as is done in a measure at present. It is within the knowledge of every practitioner that many well-to-do respectable people, whose means will not permit of the payment of a surgeon's fee for an operation performed in their homes, have no course left open to them but to seek the benefits of a charity. For such, a solution of the difficulty must be found in pay wards.

Area of Supply.—That our city hospitals are national, and not purely local institutions, is abundantly proved by an examination of the localities from which the sick come. Many of those who seek and find admission come from distant parts of the country in order to obtain the best professional skill, which is generally to be found attached to the large hospitals. This practice of country people, as old as the hospitals themselves, is quite intelligible. But it is precisely this feature of a hospital work that gives it a national character. The authorities do not make a point of ascertaining if the localities from which they come help in any way to maintain the hospital, and rural applicants are not turned away at the hospital gate, because they, likewise, coming to know the value of a subscriber's line, provide themselves with the same. In the last report of the Edinburgh Royal Infirmary, it is claimed for that institution that it is a great national one, extending its benefits to every part of the land. There is much truth in this, for no less than 32 per cent of those who gained an entrance to its wards came neither from the city nor county of Edinburgh. In the three principal hospitals of this city, 30 per cent of their admissions came from districts beyond the city and the suburbs, and 22 per cent from beyond the county of Lanark. The experience of English and Irish hospitals is similar. In not a few instances the proportion of country patients is even larger. Thus, as may be seen from the table showing the *locale* of patients, no less than 40 per cent of the admissions to the Manchester Royal Infirmary do not reside in Manchester or Salford.

Glasgow.	Admissions.	From Glasgow.	From Glasgow and Suburbs.	From County of Lanark.	Elsewhere.
Royal Infirmary, Western	4,777	3,393-71%	3,708-77%	289-6%	780-16%
"	3,572	...	2,842-80%	256-7%	454-13%
Sick Children's Hospital,	470	...	422-89%	8-1-7%	40- 9%
Ophthalmic Institution,	463	...	154-33%	80-17%	229-49%
Eye Infirmary, .	*9,776	7,655-79%	...	...	2,111-21%

Edinburgh.	Admissions.	From Edinburgh.	Edinburgh and Leith.	Edinburgh County.	Elsewhere.
Royal Infirmary, }	8,173	4,158-50%	4,872-59%	641-8%	2,660-32%

Manchester.	Admissions.	Manchester and Salford.	Elsewhere.
Children's Hospital (Pendlebury),	*10,260	9,399-93-4	861-8-6%
Eye Hospital, .	1,396	425-30%	971-70%
Royal Infirmary, .	4,250	2,577-60%	1,673-40%

Birmingham.	Admissions.	Birmingham.	Elsewhere.
Queen's Hospital, .	1,980	1,768-90%	212-10%

* Outdoor and indoor.

All these hospitals are fulfilling a great national function, and that being the case, it is but reasonable that the custodians of the national purse should be asked to assist the hospital on the same principle as they now assist the universities, the schools, and other institutions of a national character. An appeal to our social reformers to aid localities in a work as necessitous and noble as, if not nobler than any of those to which at present national funds are contributed, should not be in vain. But inquiry must precede the concession of grants.

Freedom of the Hospital.—To most of our hospitals access is only obtained by means of recommendations and lines from subscribers. There are a few isolated instances where hospital managers have taken high ground, and "have flung their doors wide" to all whom the examining medical officer considers fit subjects. I have tried to find out from reports, and from other sources, why subscriber's lines have such a place in our hospital system—for their use and significance are well understood—and I am shut up to the belief that it is the weak financial position of most hospitals which gives these lines the

value they possess. All who subscribe a guinea and upwards have the privilege of recommending the sick poor according to a graduated scale. But as the number is small of those who subscribe enough to secure the privilege, it is not to be wondered that many of the sick after many endeavours fail to obtain the passport, and should they find entrance without it, when there is a prospect of success, the friends are requested to make some efforts to secure it. It is quite intelligible under this system that if a number of applicants, whose physical sufferings are little different, apply for admission, preference will be given to the fortunate possessors of the lines. And this occurs oftener than people have any conception of. In the regulations of the Liverpool Phthisical Hospital, it is expressly stated that patients nominated by subscribers take precedence of all others. One need have little hesitation in believing that the frank outspoken declaration of the authorities of this hospital is the cue taken by others who are more guarded in their references to these lines of recommendation. It is not comforting to think that these lines act as a deterrent to those who are sorely in need of hospital treatment. Many of the rejected and deferred, I doubt not, ultimately find their way to the workhouse infirmaries—many return to their humble domiciles, there to endure, it may be, the struggles of a long and painful illness. In justice, I ought to say that in different hospitals there are different degrees of this objectionable system in operation. But until a change takes place in the administration, there is not much hope for the absolute freedom of the hospital.

There is a section of our profession to be combated—a small one I think—and these are they who are much concerned about the working man's loss of independence, and who consider that access to our hospitals is too easily obtained. It would, in my opinion, be impossible to improve upon the facilities afforded by the present system which admits "free" many who could well afford to pay in whole or part for their treatment. One inevitable result of a new organisation would be that people with adequate means would find it extremely difficult to gain access to the wards, as there would be—what there is not a semblance of at present—an inquiry made into their circumstances. There is further much need for a central authority, composed of men qualified for the work of laying down, without fear or favour in consultation with representatives of the general practitioners, some general indications as to the nature of diseases suited for hospital treatment, and what class of people should have "free" access.

With this knowledge it is not at all surprising that the head of the Parisian hospitals, when taunted with the complete absence of philanthropy as a power in Paris, should turn to his boasting Anglican friend and say, "Ah! yes, that is so far true, but our hospital gates are wide—we turn none away—there is abundant provision for all." I know of only one city in the kingdom where the hospitals are *free*—I refer to Birmingham. In this, as in other matters, it has set a splendid example to other cities, and financially they are not worse off than their neighbours with hospital gates either closed or ajar. The Birmingham system is so admirable that I cannot forbear quoting an extract or two from the reports of its two largest hospitals. In 1875 the governors of the Queen's Hospital resolved, "that the hospital should be free, and thus relinquished their rights to introduce and recommend patients, and provided that the suffering and deserving poor should be received and treated without any conditions or qualifications." In the annual report it is stated "that in the stream of human suffering which constantly flows towards the hospital gates, some of the patients come from those migratory classes which have no fixed employment or home; and no one will grudge these poor creatures a resort in time of sickness. Yet the great bulk is drawn from the ordinary manual labour class, who would have to appeal to their friends and employers for tickets but for the system adopted in this hospital of receiving the sufferer without compelling him to obtain a pass from a subscriber." The Committee of the Sick Children's Hospital, Birmingham, declare that "they see no reason whatever to depart from the principle on which the institution was established—viz., that it should be a *free* hospital."

REMEDIES PROPOSED.

In regard to the hospitals, I think I have shown very clearly to all with an open mind—

1. That the system of government is not in harmony with modern ideas.
2. That in Glasgow and other centres the present accommodation is far from adequate, and that this inadequacy leads to great hardship.
3. That their financial position is unsatisfactory.
4. That the hospitals, as far as their influence will admit, fulfil a national and not merely a local purpose.
5. That the system of admission is objectionable, and leads to abuses.

6. That the system of examining and selecting applicants requires to be changed.

7. That the absence of convalescent homes is further evidence, if that were wanted, of the inability of philanthropy to do more.

Many people with whom I have conversed on the matter seem to think that the problem is difficult of solution. From what I have seen of hospitals at home and abroad I confess I do not share their views. It is some consolation to know that social reformers have solved more intricate problems than this within the last fifty years—some of which are closely allied to the one we are discussing. With your permission, I will now address myself to the consideration of the means by which reform might possibly be accomplished.

First, and most important would be the setting up of a *Central Authority* for a large area of the country—this body to be in touch with a Minister of Health, when such a necessary official is created, or other high state official.

Second, The establishment by the Central Authority of a *medical bureau*, where the examination of applicants for the hospitals would be conducted by practitioners of experience, and where inquiry, not of an inquisitorial kind, would be made by a body such as the Charity Organisation Society. The number of vacant beds in each hospital could be learned here daily without any trouble.

Third, The hospitals at present attached to workhouses and poorhouses to be divorced from them, and to form part of the hospital system. These might be used for chronic and incurable diseases.

Fourth, The establishment of convalescent homes, and sanatoria in the country and at the seaside.

The value of convalescent homes, as important auxiliaries to our hospitals, is best known and appreciated by those who possess them. The managers of the Birmingham General Hospital, on this very point, in their annual report state, regarding two cases of aneurism sent from the General Hospital to the convalescent hospital, that if they were discharged “both patients would almost certainly have died; if retained, as in all probability they would have been, they would have excluded no less than 36 other patients.” Let it be noted that these two patients were suffering from an incurable disease, and yet they are not turned into the street.

It has been suggested in some quarters that, with the view of increasing the good of the hospitals, the residence in hospitals should be curtailed, more especially in Glasgow,

where it is said to be longer than in most large city hospitals. The authors of such suggestions have not considered that if the suggestion were acted upon cruel hardships would be inflicted upon 40 per cent of those admitted. If a residence of 37 days in Glasgow hospitals is reckoned too long for each patient, it can *only* be shortened by the establishment of convalescent homes, where a large proportion of patients could spend two or three weeks before resuming their calling in life. In such homes the daily cost, it is contended, would be 40 per cent less than in the infirmaries. And assuming that of the 8,250 patients treated to a termination, 3,000 required the further residence of 17 days in these sanatoria, a saving of £3,000 of the hospital funds would be effected. Under a representative system of hospital government one or more convalescent homes in connection with every city would soon be an accomplished fact.

The Central Authority should be thoroughly representative in its character, and should be composed of delegates from the subscribers, from corporate bodies urban and rural, from the working classes, and from the Crown. As by far the greatest part of the funds would still be got by subscriptions, donations, and legacies, the subscribers would have the largest representation upon this Board. The presence of medical men on the Board as representing the Crown would be a guarantee that the Treasury grant was well spent. It is a maxim that the Treasury, with the sanction of Parliament, give no grants-in-aid unless they exercise some control. Such an arrangement as this would not make the hospitals merely an affair of the state, as some people seem to think and fear. Of this I am perfectly satisfied, that if the hospitals became the property of the state, or even the municipality, there would be an end of philanthropy, and no one, I feel sure, desires such a calamity. Such an authority—perhaps somewhat differently constituted—does exist at this moment, and has existed for thirty years in Paris—a city where the hospital system is admirable. The Directors of the *Assistance Publique*—the head of the central administrative body—with justifiable pride proclaims, that in their splendidly equipped *hospitaux et hospices*, they have made provision of the most adequate kind for all their sick. That this is really the case may be gleaned from the fact that they have one bed for every 250 of the population, and that 20 per cent of the entire deaths occur in the hospitals. In this country Dublin alone makes greater—I may say excessive—provision. The head of the hospitals in Paris holds a position very much like what the President of

the Local Government Board does in England, or what a Minister of Health, if created, would hold. But the admirable work accomplished in Paris does not cease here. They have convalescent homes to which 1 in 7 of those admitted to the hospitals are sent—these being the worst cases, whose stay in the city hospitals would exclude necessitous cases. The French have always admitted that philanthropy was never such a power in their country as in ours, but while that is so, it would be a mistake to assume that philanthropy has no share in the great and beneficent work done in the French hospitals. It is the case that by a tax on the theatres £80,000 is secured for the hospitals. Other concessions to increase the revenue have been made from time to time by the state. The municipality of Paris likewise assists by an annual subvention of £60,000. But a considerable sum is annually derived from the endowments of kings and pious benefactors among the *noblesse* and *bourgeoisie*. And in more recent times two legacies, amounting to £160,000, were left to build Lariboisière. The Parisian hospitals, by these provisions, are free of debt, and are thus enabled to carry on their work without hindrance. Under such a system of management there can be no abuse of the charities.

The American hospitals are not under the control of the Federal Government nor the States Parliament, but like our own are managed in the main by the representatives of the subscribers. Financially many of them are badly off, and at times they do not hesitate to take subventions from the municipal authorities. In New York I understand that a subsidy of £34,000, or 30 per cent of the hospital revenues, is given by the State Government. The system of small and separate special hospitals does not obtain in the United States to anything like the extent it does in this country.

In our Australian colonies enlightened views are held in regard to this as well as other questions. Grants are given by the Treasury proportionate to what is raised in the towns, in some instances half of the cost being borne by the colonial exchequer.

In Canada the elective provincial councils have the management of the hospitals and charities.

These facts go a long way to prove that subventions, municipal or imperial, do not put an end to philanthropy, as evidenced by contributions, donations, and legacies. These would still make up the lion's share of the income. There can be little doubt if Parliament in its wisdom authorised the Treasury to give grants-in-aid to communities, it would be done

in the case of the hospitals as in the case of other institutions, *conditional* upon the locality doing so much for itself. This arrangement has worked admirably in connection with other national concerns. In case there may be sticklers for precedent among us who would fear the new departure, I think it can be shown beyond dispute that the hospital question is on all fours with other allied public questions which at one time were in the unfortunate position in which the hospitals now are, but which have been satisfactorily solved. I do not say the changes brought perfection, but they brought decided advantages. These matters to which I refer are education, the maintenance of the poor, and the care of neglected children fast slipping into crime. The time was when voluntary effort undertook to provide for the poor through the agency of the church. That poverty was then fairly well met I shall not seek to deny; but with that paradoxical state of society—increasing poverty and increasing wealth—it was found by a Royal Commission that this agency could not be depended upon to overtake the gigantic work of caring for the poor.

Time was, and not so long ago, when the education of the young was provided for by voluntary effort. That system of education did well in its day, but it also had to give way to a better; and who, in the light of experience, can doubt the wisdom of those who took "occasion by the hand," and wrought great and important changes in regard to our educational system? And surely the management and maintenance of our hospitals and the care of the sick is worthy of equal consideration at the hands of enlightened reformers.

Time was when voluntary effort provided for the wants of homeless and neglected children in what are known as the Ragged Schools. Of such, a large number (1,770) are cared for in training ships maintained by the double method of voluntary subscriptions, donations, and legacies given by those who recognised and approved of the good work these were doing for wayward youth, and by Treasury grants per head, amounting in the aggregate for last year to £27,000. The imperial contribution to these institutions fulfilling a national function is *limited* and *conditional*. This arrangement during the past twenty years has worked well. Then we know that the State contributes large sums to our Universities conditional upon the community doing what the Treasury Lords consider their share. I was not aware, however, until I had made inquiry in many quarters, that there are nine hospitals in Dublin maintained in the manner I should like to see all ours maintained—viz., by voluntary contributions and Parlia-

mentary grants. These hospitals, with 1,500 beds, receive annually from the national exchequer £16,000 a year—a sum, I feel sure, the Glasgow, Liverpool, and other hospital committees, would not despise.

This excellent system of helping those who help themselves, in regard to institutions fulfilling a national purpose, should be extended. And of this I feel satisfied—that if it were done, the hospital accommodation would soon attain its true proportions, and the finances would be placed on a sound basis. It is not too much to say, judging from the past, that philanthropy can do neither the one nor the other.

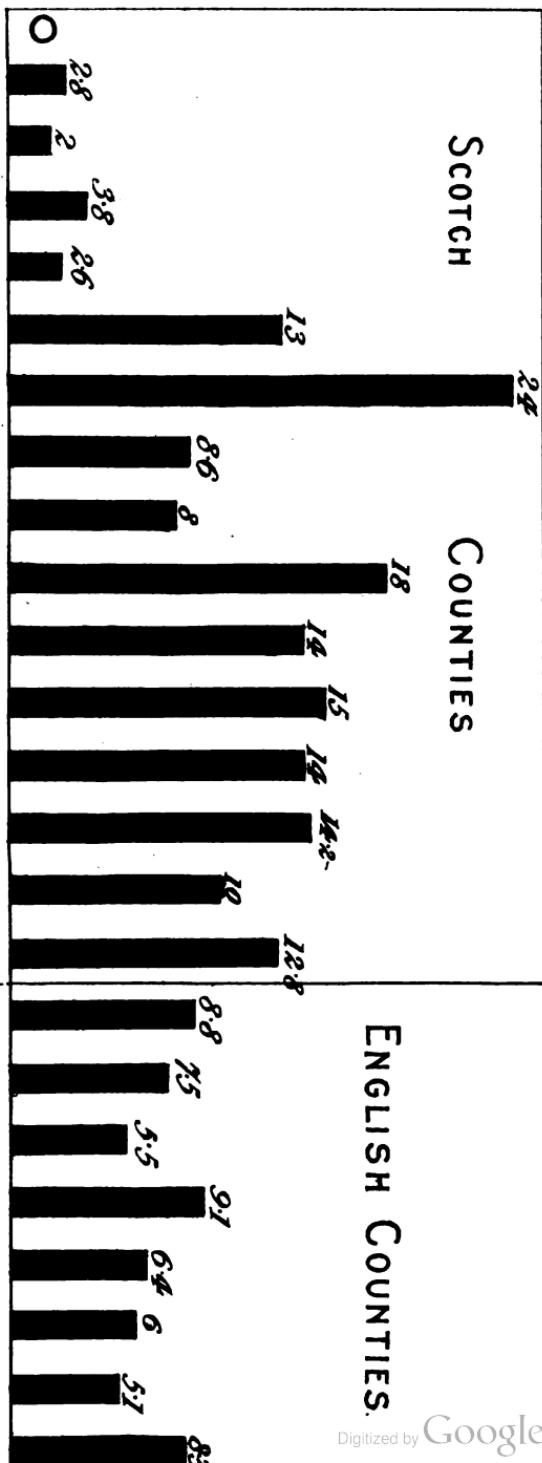
That these proposals, by no means sweeping in their character, will meet with hostility in certain quarters, I have no manner of doubt; but equally sanguine am I that they will receive the support of many members of the profession who are not wedded to a system that has long pursued its way undisturbed.

There is one other alternative to the proposal now made, and that is rated hospitals. And of this be sure, as soon as rates are levied, be they light or heavy, that moment philanthropy ceases. There need be no doubt about that. If either method of increasing the hospital accommodation, and relieving the straitened financial position in which the hospitals find themselves, be an unfortunate necessity, it is safe to choose the least so. I have made calculations with the view of finding out the rate that would be necessary to maintain the hospitals of a district or of the entire country, and these I submit, feeling that at most they are only rough guesses. If a national tax were imposed for the upkeep of 6,600 beds, which means one to every 600 of the population, it would not be less than 2½d. per £ of rental. It would yield £260,000. But if, as is more probable in times when decentralisation is the order of the day, the tax was a local one, it would be much heavier in cities, owing to more sickness and a much higher death-rate, than in rural districts. How would such an arrangement affect the county of Lanark, with a million souls? Assuming that one bed for every 250 would be ample, that would necessitate 4,000 beds, maintained at a cost of £140,000 (£35 per bed). Such a sum would entail a rate of not less than 6d. per £. Of course, as the Hospital Board would take over the sick at present cared for by the parishes, there would be some relief from poor assessment.

Personally, I may say, once and for all, that I do not favour taxation. A subvention from the Treasury, having a relation to local contributions, would, in my opinion, solve the difficulty.

RATIO of BEDS in COUNTIES per 10,000 of POP.

17 COUNTIES
 ORKNEY.
 ROSS.
 ROXBURGH.
 STIRLING.
 LANARK.
 EDINBURGH.
 RENFREW.
 PERTH.
 INVERNESS.
 FORFAR
 ELGIN.
 DUMFRIES.
 BANFF.
 AYR.
 ABERDEEN.
 LANCASH.
 YORK.
 WILTS.
 SUFFOLK.
 NORTHAM^N.
 LINCOLN.
 DURHAM.
 DORSET.



Imperial funds could not be possibly devoted to a nobler and better work.

I can scarcely credit the belief entertained by many to whom I have spoken on this question, that if parliamentary grants were given, private subscriptions would cease—more especially as those who contribute so generously now, know full well that much sickness for want of accommodation cannot be met and relieved. Besides, precedents of the kind I have enumerated afford strong evidence that these fears are groundless. If our legislators can be convinced that, in the interests of the people, changes are needed, then opposition will be in vain. Endowed hospitals of another kind requiring reform resisted that state interference suggested by a Royal Commission, but of no avail.

In conclusion, I desire to say that I have brought up this important matter with the view of ventilating the question, and, if possible, of taking a forward movement on the lines indicated. Of course the solution does not rest entirely with our profession. The public have a large say. But the profession is an important factor, and can exercise much influence to bring about a better state of things. None are better acquainted with the points to which I have referred than hospital staffs, and the vast majority of the profession—the general practitioners. The latter knows to his chagrin and regret that many of his poorer patients, fit subjects for hospital treatment, cannot gain admission for want of accommodation, and in not a few instances for want of a subscriber's line—the former, *i. e.*, the hospital staff, must frequently deplore the fact that their wards are so full that they must decline cases in every way suited for hospital treatment. I entertain the hope that our profession will give no uncertain sound upon this question, so that, when the time arrives for taking action, those public men, who have at heart the amelioration of the lot of the poor and suffering, and who will be called upon to give effect by legislative enactment to changes of a considerable kind, will have the advice of a body of men well qualified to give it.

THE INTERNATIONAL OTOLOGICAL CONGRESS IN
BRUSSELS.

By THOMAS BARR, M.D.

THIS Congress, held in "Belgium's capital" from the 9th to the 15th September, 1888, was undoubtedly a decided success. There was a large attendance of otologists from both Europe and America, and among the well known Continental specialists were Politzer, from Vienna; Hartmann, from Berlin; Gellé and Menière, from Paris; Guye, from Amsterdam; Sapolini, from Milan; Gradenigo, from Padua; and Delstanche, *père et fils*, of Brussels. America was represented by Roosa and Knapp, of New York, and Turnbull and Randall, of Philadelphia. England was represented by Pritchard, Baber, Stewart, and Stone; Scotland, by the writer. The Congress was presided over by Dr. Delstanche, *fils*, of Brussels, with Dr. Sapolini as vice-president.

The "Rendez-vous de bien-venue" took place in the *Cercle Artistique*, on Sunday evening, 9th September, at nine o'clock, when introductions were made, and old, in many cases long separated, friends, greeted each other with true Continental effusiveness. This re-union formed a most pleasant and useful prelude to the actual work of the Congress, which commenced on the following morning, in the beautiful *Palais des Académies*. The official languages of the Congress were French, English, German, Dutch, and Italian. Professor Guye, from his excellent knowledge of the first four languages, acted as interpreter in these. His services in this respect were frequently called into requisition, and were given ungrudgingly and with great acceptance. Dr. Murpуро rendered the same important services in the case of Italian and French.

For four days the members were very busily engaged, from 9 to 12 and from 3 to 6, and the work done at the meetings was undoubtedly of a high order. The programme included 44 communications, which were classified under the headings of (1) Normal and Pathological Anatomy; (2) Physiology and Methods of Exploration; (3) Pathology and Therapeutics. In addition there was a very extensive and valuable exhibition of otological and rhinological instruments. From the numerous and able papers and demonstrations, it is difficult to make a selection, but this is the less required as the whole will ultimately be published in a volume of *Transactions*. Probably on no previous occasion had there been so valuable a collection of pathological sections of the middle ear and of

normal sections of the internal ear brought together as were presented by Politzer's demonstrations. His faculty of depicting these, in black and white, on large slips of paper, while the specimens were passed round, was put into most effective use. This veteran head of our specialty looked in remarkably good health, presented no signs of aging, and indeed is little altered since the writer last saw him, ten years ago. Professor Gradenigo's contribution on the development of the auricle in man and in mammals, and his demonstration of the electric reaction of the auditory nerve were of great scientific value. This gentleman, who is young in years, gives one the impression of an earnest and able worker from whom still more valuable work may be yet expected. Dr. Rohrer dealt, in the most exhaustive fashion, with the subject of the relation between bone conduction and air conduction (Rinne's experiment) in the diagnosis of labyrinthine affections. Professor Cozzolino, of Naples, who has all the characteristic Italian fire, enthusiasm, and eagerness, excited much interest, but also provoked a good deal of dissent, by his paper on a case in which the *fenestra rotunda* had been accidentally perforated by the galvanic cautery with excellent results upon pulsating tinnitus and vertigo which had been due to excessive labyrinthine pressure. A first rate paper was also contributed by the President upon the therapeutics of sclerosis of the middle ear. Our American co-workers took an active and honourable share in the work. Dr. Knapp, by his paper on a uniform notation in expressing auditory acuteness and that on fibrous tumours of the lobule; Dr. Roosa, by his suggestive and highly practical paper on the influence of quinine upon ear disease; Dr. Laurence Turnbull, by his clear clinical record of a case of complete exfoliation of the osseous labyrinth, with demonstration of the specimen, which was beautifully mounted in sections; Dr. Randall, by his photographic representation of microscopic sections of the ear—all these more than sustained the reputation of the American school of otology.

The representatives of Britain also gave a good account of themselves. Dr. Urban Pritchard conducted, in the Hospital of Saint Jean, a most interesting lime-light demonstration of the structure of the internal ear in fishes and mammalia. In connection with the rhinological aspects of otology, Mr. Cresswell Baber, of Brighton, contributed a valuable practical paper on the use of alcoholic applications in chronic rhinitis, while in St. Peter's Hospital he showed a number of new rhinological instruments, in which many of the members of

Congress were much interested. The writer showed, as a companion to Dr. Turnbull's specimen, an almost complete osseous labyrinth, removed as a sequestrum from the external auditory canal. He also read a paper on perforation of the cranium in abscess of the brain due to ear disease. In this paper, the writer detailed to the Congress the work recently done by Dr. William MacEwen, of Glasgow, and other British surgeons. The gist of this communication was immediately given in French, by Professor Guye, and the successes related therein excited keen interest, and were evidently known previously to only a very few members. Dr. Roosa, of New York, said that the introduction of this operation marked a most important era in the treatment of the complications of ear disease. As showing the interest excited by this paper, it was decided that the treatment of abscess of the brain due to ear disease will form one of the three formal subjects of discussion in the next Congress, which is to be held, four years hence, in Florence. The British otologists are more largely represented than formerly in the committee of management for the next Congress, including, as it does, Dalby, Pritchard, Baber, and Stone, for England, and M'Bride and Barr for Scotland.

The social aspects of the Congress received the most ample attention. Every evening was given up to festivity. On Monday a reception—Raout—was given by the Municipality of Brussels in the Hôtel de Ville; on Tuesday a magnificent banquet was provided by the Belgian Otologists in the *Salons de la Grande Harmonie*. At this banquet Politzer gave a truly eloquent oration in proposing the toast of the Municipality of Brussels; he spoke in French, with the greatest fluency and oratorical effect. Wednesday evening was devoted to small friendly reunions at the opera and other places of entertainment; on Thursday evening all the members of Congress were invited to dinner by the various otologists of Brussels. The president, Dr. Delstanche, entertained over fifty members, in addition to ladies. For the evening his dining room and drawing room were thrown into one spacious apartment, lighted by electricity, and charmingly decorated with plants and flowers. Opposite the president, at the centre of the table, sat his father Dr. Charles Delstanche. This gentleman, who is held in the highest respect, practised aural surgery for very many years until the frailty of old age overtook him. After the toast of his health had been drunk by the company, each lady present rose from the table and, walking up to the old gentleman, gracefully kissed his forehead. Dr. Delstanche, *filz*, the

president, is the leading aural specialist in Belgium, and is a man of singularly genial and lovable nature. The striking success of the Congress was undoubtedly due to his energy and influence. The presence of ladies of all nationalities, at the various entertainments, was a very interesting feature of the meetings. To see the wife of an Italian confrère exhaling from her nostrils the fumes of a cigarette was a common spectacle, and one of considerable interest to the ladies from our own isle. Withal the most pleasant geniality prevailed among the ladies.

The last day of the Congress was most enjoyably and profitably spent. The members were invited by M. de Naeyer, a notable Belgian employer of labour, as well as a philanthropist, to spend the day at his extensive works or *papeteries*. These cover an area of 28 acres, and are situated at Willebrœck, near Malines, about midway between Brussels and Antwerp. Although mainly devoted to the manufacture of paper, they are not limited to this industry, but include also iron and copper founding, with the construction of boilers and machinery. About 1,500 men are employed, and they, with their families, are lodged in houses erected by M. de Naeyer. These houses are marvels of cheapness. Each one consists of two flats; the ground flat has a sitting room, bathroom, and kitchen, the second flat has three or four bedrooms. The kitchen and passage on ground floor are laid with tiles, and every part is scrupulously clean. Each house has a small plot of ground behind, with outhouse and dry closet. The cost of their erection varies from £52 in the case of a smaller house, to £98 in the larger ones, which in this country would cost probably £250 to erect. They are constructed on the best sanitary principles, and in a comfortable and substantial manner. M. de Naeyer is in a position to procure all the materials at cost price, bringing, for example, the wood direct from Norway and Russia, and in this way, along with comparatively cheap Belgian labour, he is able to build excellent, commodious, and healthy houses at about a third of the English price. Many of the workers own the houses in which they live, and they have attained this position on the most generous terms. When a man has been in M. de Naeyer's employment for two or three years, and has proved himself industrious and well behaved, he is offered the choice of a house which, by paying 7 per cent per annum on the cost price, will become his own after 18 years. In the case of one of medium size this annual sum amounts to no more than £4, 10s. Ample and well equipped school-rooms testify to the excellent means of edu-

cation provided to the young people in this interesting community. The musical element is a strong feature in the education of the young. At our visit we had the opportunity of being present during a music lesson, when a number of the boys played on instruments, and each one of the others, who sang, carefully marked the time with his hand. An orchestra, numbering 75 executants, has been formed by the workmen, and they play regularly in the grounds, where a stand is erected for their accommodation. The boys are also drilled in a regular military fashion. A splendid hospital and crèche have just been built for the use of the people. Shops and bakeries are also provided on the co-operative principle, so that wholesome food can be had at the prime cost. M. de Naeyer resides close to the works in a large and beautiful mansion, surrounded by grounds tastefully laid out. One striking feature of the neighbourhood, and one which lends picturesqueness to the grounds and relieves the flatness of the country, is an artificial hill of considerable height. This is made up of a great accumulation of slag, covered with soil and verdure, interspersed with flower plots and rustic grottos, while an artificial stream, with small cascades, flows down the hill side. From its summit a fine prospect of country, including Malines and its ancient cathedral, is opened out to view. The works and grounds are lighted with electric light.

When the members of Congress had gone over the works and inspected the houses and the hospital, they sat down in the large school-room to a sumptuous dinner provided by M. de Naeyer. Afterwards they were received in M. de Naeyer's house, and then walked in the grounds. These presented a strikingly beautiful appearance, illuminated by the electric light, while the artificial hill was brought into fine relief by many coloured lights; add to this the effect of a full moon from an unclouded Belgian sky, and we have a scene which will not soon be forgotten by those whose good fortune it was to be present. The workmen's orchestra discoursed music, and the workpeople and children were allowed free access to all parts. Once a week they are thus admitted into the grounds of M. de Naeyer, while the band plays, and with their demeanour as seen by us, the most fastidious could find no objection. M. de Naeyer is a remarkable man, and a true friend of the working classes. In religion he is a Roman Catholic, but a liberal in politics. He is ever anxious to improve the physical, mental, and social condition of his employees, whom he evidently regards as placed under his

care. He recognises in a way well worthy of imitation his responsibility as an employer. How many excellent opportunities there are in our country for doing as this good Belgian has done! Wider imitation of his conduct would be the best antidote to the socialistic spirit which at present threatens the safety of society. At ten o'clock a train was ready to convey the members of Congress back to Brussels. Thus ended the fourth International Otological Congress, which to those who had the privilege of being present, will always be regarded as one of the most pleasant memories of their lives.

A CASE OF DIFFUSE, COLLOID, CYLINDER-CELLED
EPITHELIOMA OF THE STOMACH, ORIGINATING
AROUND THE ENTRANCE OF THE OESOPHAGUS,
WITH SECONDARY TUMOURS IN THE LUNGS AND
OTHER PARTS, BUT NOT IN THE LIVER.

By JOHN LINDSAY STEVEN, M.D.,

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(Communicated to the *Glasgow Pathological and Clinical Society,*
12th November, 1888.)

THE specimens which I wish to bring under your notice this evening consist of the stomach, in which the primary tumour was situated, and of microscopic sections both of the original growth and of various secondary formations. After having been removed from the body, and before being opened, the organ was carefully washed out and distended with spirit, and, after hardening was completed, the viscus was divided into two halves (consisting of the anterior and posterior walls), so that the relationships of the tumour are easily seen. Taking the anterior wall first, it is seen that the external surface is rough and rather nodulated over the median portion of its extent, leaving the cardiac and pyloric ends comparatively free. On this surface, also, there is a distinct hard projection about 2 or 3 inches long, and somewhat semilunar in shape, which constituted the portion of tumour which could be felt beneath the margin of the left ribs during the last months of life. About 2 inches of the oesophagus have also been preserved, and along its external surface are seen several enlarged, black, thoracic lymphatic glands. Turning now to its internal surface, it is found that, surrounding the entrance of the

œsophagus, there is an irregular bulky tumour, which has evidently originated in the gastric mucous membrane, and, passing upwards, has encroached to some extent upon the tissue of the gullet, which is rather dilated. From this, its starting point, the growth has extended in a diffuse manner upon the anterior wall, as already described, and also backwards over the posterior wall to a very considerable extent, as will immediately be seen. In this section, also, it is seen that the pylorus is quite free, and the duodenum beyond it quite healthy. Along the greater curvature, in its anterior aspect, there is comparatively little of the tumour formation, and thus a passage, not of very great diameter, has been left between the cardiac end and the pylorus. Turning now to the posterior half of the organ, it is found that a considerable portion of the cardiac end, sufficient when distended to contain a large apple, has not been encroached upon by the tumour. Between this free portion, however, and the pyloric extremity, the whole of the posterior wall has been converted into tumour tissue, which forms bulky nodular projections into the cavity of the stomach. The tumour tissue has extended along the entire lesser curvature, which is much contracted and puckered, but stops short just at the pylorus, which is quite free, and quite patent, the mucous membrane being smooth and normal in appearance. Externally, along the greater curvature, where the omentum passes off, the growth has extended into the omental tissue, so that a nodular fringed appearance has been here produced. The entrance of the œsophagus, although surrounded by lobulated tumour masses and considerably obstructed, has apparently at no time been completely occluded; and when washing out the contents, it was found that the finger could be easily passed through it into the stomach, although it was firmly grasped in doing so.

The *post-mortem* examination was performed by myself at the patient's house on the 26th October, 1888, in the presence of Mr. Grant Andrew, student of medicine, and with the assistance of Mr. W. R. Ogilvie, Museum Assistant, Western Infirmary. The following are the notes which were taken at the time:—

The body is extremely emaciated, and on opening the abdomen the peritoneal cavity is found, on the whole, to be quite normal in appearance, and the intestines are quite empty and collapsed. The *great omentum*, which is nearly devoid of fat, is adherent by a long narrow band to the mesentery near the *cæcum*, and in its substance is a small cancer like nodule about the size of a horse bean. In the

mesentery, near the point of adhesion, is a small, hard, calcareous nodule. The left lobe of the *liver* is quite normal in appearance, size, and situation.

The *stomach* is much contracted, and is gathered up into the left hypochondriac region. The whole of its anterior and cardiac extremity, as viewed from the front, is converted into a firm, cartilaginous, nodulated, diffused mass, which apparently does not extend so far as the pylorus. This mass precisely occupies the situation in which the hard movable tumour was felt during life, and from the somewhat glistening appearance of some of its nodules is suggestive of colloid cancer.

Chest.—The *heart* is much atrophied and wasted, but is otherwise normal. The *left lung* is non-adherent, and contains numerous small, white, circular nodules of consolidation (probably secondary tumours), with a small cavity having a well defined lining membrane in the upper part of the lower lobe. In addition to the hard, probably cancerous, nodules, there is in the upper and anterior portion of the lower lobe of this lung an area having all the characters of recent caseous pneumonia.

The upper lobe of the *right lung* is slightly adherent, and the whole of its substance is the seat of very typical caseous pneumonia, apparently of some standing. In addition to this, there are in the lower lobes several well defined nodules, distinctly cancerous in appearance, and undergoing softening in their central parts.

The *stomach*, *spleen*, and a few inches of the *oesophagus*, are removed together for more detailed examination. The under surface of the *diaphragm* is studded with numerous brilliant white circular nodules, evidently secondary. The capsule of the *spleen* contains many small white nodules, and in the tissue of its anterior margin, there is a large white circular mass about the size of a hazel nut.

The *liver*, on being removed from the body, is found to be quite normal in every part, and the *kidneys* also present healthy characters.

Under the microscopes on the table, I have placed a number of sections showing the structure of the primary tumour and of the secondary formations. The primary tumour is seen to consist for the most part of large alveolar spaces filled with glistening colloid material, and here and there showing epithelial cells in a state of advanced fatty degeneration. In some places the original structure of the tumour is seen—*i. e.*, its structure before the colloid change had over-

taken the growth. This was seen to consist of small circular or elongated crypts or follicles, lined with columnar or cylinder shaped cells, having large well formed nuclei. The appearances were precisely those to which one would apply the name columnar- or cylinder-celled epithelioma. An examination of the secondary tumours proves that this opinion is correct. In the pulmonary nodules are seen well defined alveoli lined with columnar epithelium, and containing frequently a structureless substance, which looks as if it had been formed by the cells. It is possible that the cancer cells may have retained a modified functional activity, or that this appearance of contents is the beginning of colloid metamorphosis in the pulmonary nodules. The secondary formations in other parts present similar appearances.

The pathological diagnosis of the case, then, is as follows:—*Diffuse colloid and columnar-celled epithelioma of the stomach, originating around the entrance of the œsophagus, and spreading over the anterior and posterior walls, but sparing a portion of the cardiac extremity and the pylorus, with secondary growths in the lungs, diaphragm, and other parts.*

I shall now briefly relate a few circumstances bearing upon the clinical history of the case. The patient was more or less continually under my observation since April, 1887. He was a stone mason, aged 33 at the time of his death, and for some years he had worked at a lathe for turning sandstone. In following this occupation, it was necessary for him to stand nearly all day pressing a long iron chisel against the revolving stone, the blunt end of the chisel resting heavily against his left hypochondriac region. To this, and to the fact that for a lengthened period he had to live upon "carried meals," he and his friends were inclined to attribute the origin of his illness. In the spring of 1887, he was confined to the house for a week or two with symptoms of acute or subacute catarrh of the stomach, his digestion having been weak for some time previously. He was then under the care of his family medical attendant, and I only saw him occasionally on behalf of a Society of which he was a member.

26th June, 1887.—To-day the patient consulted me again, and the following note was taken at the time. He complains severely of his stomach—he is losing flesh—sweats at night—and suffers much from debility and loss of appetite—he has pain in the epigastrium during meals and after food, and *he suffers from pain and difficulty while swallowing his food.* He is bilious and ill-looking, and has had a short dry cough

during the last fortnight. Examination of epigastrium is negative, but it is thought that there is dulness at the extreme right apex and a doubtful crackling rôle at the end of inspiration. A pepsine mixture was ordered.

During the summer and winter following the date of this note I saw him at intervals, and he was able to continue at his work till February, 1888, when increasing debility, emaciation and pain on swallowing and after food, forced him to lie up. During this time his medical attendant had on several occasions passed oesophageal bougies without, however, any very beneficial result.

In May, 1888, he went into the Western Infirmary, and was for some time under the care of Professor M'Call Anderson. While in the Infirmary the movable tumour towards the left side of the epigastrium was for the first time discovered; and his strength was supported by the careful use of peptonised foods, and Burroughs Wellcomes' zymnized suppositories. He left the Infirmary without experiencing any great improvement in his condition. During the summer and autumn months he steadily went down hill, and he died on the 25th October last. During the whole of the time which elapsed between his leaving the Infirmary and his death the tumour in the epigastrium could be easily manipulated. It was very hard, somewhat rough on the surface, and was not at all very painful on pressure. It slipped down beneath the fingers on a deep inspiration, receding again under the ribs during expiration. During the later months of life the difficulty of swallowing in large measure disappeared; but he was much troubled with a watery diarrhoea, which, however, could be controlled by the careful use of laudanum. During the progress of the case it was noted that the difficulty of swallowing was on some days worse than on others, and he often felt that he was able to swallow better after "getting up some defecation" which he thought prevented the food from entering the stomach.

The case just recorded presents several points of interest, which may now be briefly referred to. The situation of the tumour, originating around the cardiac orifice, is not very usual, by far the most common site of primary cancerous tumours of the stomach being the pyloric extremity. "Of 120 cases of carcinoma of the stomach collected by Köhler, 59 had their site in the pylorus, 17 in the smaller curvature, 11 in the anterior and posterior wall, 8 in the cardia, 3 in the greater curvature, 3 affected almost the whole wall, and in 1 case there were several tumours in different parts of the wall

of the stomach."* Cancerous tumours "are almost always seated near the pylorus or lesser curve; sometimes also they are found at the cardia, from which they extend to the larger curve and fundus." (Cornil et Ranvier.) Further, the extremely diffuse character of the cancerous infiltration is another point of interest in the case. According to Cornil and Ranvier, cancerous tumours "show a great tendency to extend over the posterior wall, and they sometimes surround almost the entire stomach."† This was very markedly so in the present case. The same authorities state that cylindrical-celled epithelioma is the most common of the primary tumours of the stomach, and that it frequently "undergoes colloid degeneration either partially or throughout its whole mass, so that at first sight it might easily be mistaken for colloid carcinoma." These remarks also apply in every detail to the present case. That the tumour originated in the mucous membrane of the stomach, and not in that of the oesophagus, is proved by its histological structure—in the gullet cancerous tumours are composed of pavement epithelium.

In concluding this communication I desire to allude to two other points. First, it is remarkable that in a case of such extensive cancerous infiltration of the gastric wall, the liver should have entirely escaped, and the secondary tumours been wholly confined to the parts mentioned. And second, I would desire to ask the question—Had the irritation, to which the cardiac end of this patient's stomach was for a lengthened period subjected by the pressure of the chisel used in his employment, anything to do with the setting up of the disease?

EXPLANATION OF PLATE.

The Plate shows the internal view of the anterior of the two halves into which the stomach was bisected after being hardened in spirit.

a. The dilated oesophagus, with tumour tissue extending up its wall to some extent; and with great narrowing, but not closure of the orifice.

b. Duodenum quite healthy, except for small cyst of mucous membrane, near the pylorus, which is seen in the Plate at the left hand margin of the pyloric orifice.

c. Pylorus quite patent, healthy, and scarcely reached by the tumour tissue.

d. Main mass of tumour surrounding the entrance of the gullet, passing up it to some extent, involving whole lesser curvature, encroaching upon the anterior wall, and almost reaching, but scarcely involving, the pylorus.

d'. Shows a rounded edge of the tumour tissue very near, but not involving the pylorus.

d''. Shows a mass of tumour in the greater curvature, having probably extended forwards from the very greatly involved posterior wall.

* *Lehrbuch der Pathologischen Anatomie*, von Dr. F. V. Birch-Hirschfeld. Zweiter Band. Leipzig, 1885. P. 529.

† *Manual of Pathological Histology*. By Cornil & Ranvier. Translated by A. M. Hart. London : Smith, Elder & Co. 1884. Vol. ii, page 259.



A SUGGESTION TOWARDS THE IMPROVEMENT OF THE MEDICAL CURRICULUM.

By J. K. KELLY, M.B.

I.—THE study of medicine is a preparation for work—for the practical application of scientific principles. These principles may be under dispute, and may yet require revision and settlement by scientific investigators, but the practitioner is not free to withhold his art because his principles are disputed. And it is matter for congratulation, that in the immense majority of instances, the best practice, the highest art, is not disputed at all. It follows, then, that all students should be taught their art, and that all who choose should have the opportunity of investigating as well the sciences upon which it is based, just as all engineers should be taught their practical work, while an opportunity should be given to all who choose to examine its scientific basis as well. It may happen that the most prompt and skilful surgeon or physician, like the most skilful engineer, is not the best informed on the science of his subject, but it is certain that he who combines the two qualities of practical skill and scientific knowledge, is the man most likely to extend the range of his art.

II.—Being a preparation for work, the different departments of medical study should be arranged so as to lead into and supplement each other.

It is here that at present the great error lies. The subjects included in the medical curriculum are not only too many, they are taught with too little, and in some cases with no feeling of connection or subordination. Each professor takes up his subject as an independent science, and teaches it as such, and not at all in its relation to the other elements of medical study. The professor of botany, for example, does not treat of medicinal plants, their properties, their effects; nor does the professor of chemistry teach the chemistry of the blood, the urine, the tissues. Even the subject of *materia medica* has often only a remote connection with practice. By the ordinary student such subjects are learned only to pass an examination and then to be forgotten. They are simply crammed.

From the *ordinary* medical course should be excluded all subjects which are not necessary to the student. Such necessary subjects, in most cases, would be enough and more than enough to occupy his whole time and his utmost energies,

but I think there should be in addition an *extraordinary* or *honours* course, which should include a choice of such subjects as botany, comparative anatomy, embryology, and others which have a close connection with medicine.

But if it were established that the ordinary medical studies should only be such as are necessary, the degree should be given after one great examination, and not as now after three or four. The multiplication of examinations is simply a way of hinting to the student that he may forget the matter of the early examinations as soon as they are passed. And so long as unnecessary subjects are included, it is only justice to give him such a hint. But it is of the greatest injury to the student's progress that he should be "grinding" or "cramming" at a subject for a professional examination, while he is attending a class for which he has not the time to make the necessary preparations—not to speak of the waste of energy in cramming at all.

III.—In arranging the course of studies the great principle should be followed that the powers of observation go before the powers of generalisation, and easy subjects before more difficult ones.

It is possible in these days to learn geology in a sense without ever examining a rock or seeing a fossil for one's self, and it is possible to learn medicine in a sense from a text-book without examining a patient. But the natural course of all science is the opposite of this. The material of the science is seen, handled, examined, studied, in the first place, and only in the second place is the science itself evolved from that study. So in the study of medicine. Disease, the patient, the material of the science, should be seen and studied by the student as a preliminary to his study of the science. In the same way, in his study of that material, the student should be under the guidance of teachers who lead him first to the simplest and most easily observed facts, and only afterwards to the most obscure and complicated.

IV.—While the studies in the medical curriculum should be arranged in due subordination to each other and to the needs of the student, what studies should be preliminary to the medical curriculum?

If medicine is to be a learned profession, it must be so by the basis of education the student lays before beginning purely medical study; and the broader this basis, the greater will be the possibility of his ultimate progress. It seems as if at present, when there is such a superabundance of aspirants to medicine, the basis of general education could with benefit be

widely extended. But the special preparation for medical study should consist in the training of the students' powers of observation in some natural science—studied, not in a text-book, but from Nature herself. There is wide choice here: botany, geology, physiography, chemistry, electricity, or any other branch of physics, &c., one or two subjects being required. Botany is, of all, probably the best introduction to the study of animal structure and function.

Before applying these principles to the formulation of a curriculum, there are two subjects that require a passing consideration.

1. *The Method of Theoretical Teaching.*—Every teacher who is free will, of course, choose the method he thinks best for the instruction of his students; but in general it would appear that, with our present wealth of good text-books on every subject, the method of lecturing still in vogue is somewhat antiquated. The professor should require acquaintance with the text-book, and his lectures should be illustrative of or supplementary to the book in the student's hands. And it would by no means be necessary that the professor should choose a text-book which he had himself written or with which he entirely agreed. Rather the opposite, for the discussion by an opponent of points raised in a text-book would cultivate a faculty of criticism, and inspire an independence of judgment, which are at present too much reprobated in the medical student, &c. “*Addictus jurare in verba magistri.*”

2. *The Method of Practical Teaching: Clinical Study.*—While it is of no consequence to the student hearing a lecture whether his fellow-hearers be many or few, in clinical study it is of the utmost consequence that he should be one of only a very small number. As in anatomy it is of highest importance that he should for himself dissect thoroughly the part before him, it is, if that were possible, of still higher importance in clinical study that he should for himself see, hear, and feel all the points of diagnosis that his teacher finds for him. A surgeon in the operating theatre may display to hundreds of spectators his deft and brilliant handiwork; but this demonstration is of more service in inspiring enthusiasm than in teaching surgery. This must be taught as medicine must be taught—by personal investigation under skilled guidance and instruction.

With these preliminaries, I beg to submit a scheme of medical study which might be practicable, and as nearly as possible answer all the requirements of the medical student.

A.—PRELIMINARY EDUCATION.

1. Common English Subjects.
2. Latin and one modern language—German preferably, since French and Italian are easily acquired by those who know Latin.
3. A practical acquaintance with at least *one* scientific subject—Botany being preferable to any other.

B.—THE MEDICAL CURRICULUM.

This can hardly consist of less than five winter and four summer sessions, or four and a half years, though by a student of great activity it might be accomplished in four years. Under a five years' arrangement a time table such as this might be followed:—

FIRST WINTER.

9 to 11 A.M.—Surgical Wards, beginning about mid session with practice in Bandaging, &c.

11 A.M. to 1 P.M.—Anatomy and Physiology.

2 to 4 P.M.—Dissection.

FIRST SUMMER.

9 to 11 A.M.—Surgical Wards—Minor Surgery, Dressing, Bandaging, &c.

11 A.M. to 1 P.M.—Anatomy and Physiology.

2 to 4 P.M.—Dissection.

SECOND WINTER.

9 to 11 A.M.—Surgical Wards—introducing Writing of Reports; Examination of Urine, Sputum, Faeces, &c.

11 A.M. to 1 P.M.—General Anatomy, Pathology, Microscopy.

2 to 4 P.M.—Dissection.

SECOND SUMMER.

9 to 11 A.M.—Surgical Wards—as in winter.

11 A.M. to 1 P.M.—Pathology, Microscopy.

2 to 4 P.M.—Dissection.

THIRD WINTER.

9 to 11 A.M.—Medical Wards.

11 A.M. to 2 P.M.—Medicine, Surgery, Therapeutics.

3 to 5 P.M.—Surgical Dispensary.

THIRD SUMMER.

9 to 11 A.M.—Medical Wards—Reports.

11 A.M. to 1 P.M.—Pharmacy, Public Health, Analysis of Foods, &c.

2 to 4 P.M.—Skin and Ear Dispensaries.

In autumn of this year a few cases in a Lying-in Hospital.

FOURTH WINTER.

9 to 11 A.M.—Medical Wards—Reports.

11 A.M. to 2 P.M.—Medicine, Surgery, Midwifery.

3 to 5 P.M.—Medical Dispensary.

FOURTH SUMMER.

9 to 11 A.M.—Surgical Wards—Operations by Students, Dressings, &c., under the Professor's eye.

11 A.M. to 1 P.M.—Practical Surgery, Medical Jurisprudence.

2 to 5 P.M.—Dispensaries for Eye and Throat.

In autumn of this year Midwifery cases outside of Hospital.

FIFTH WINTER.

9 to 11 A.M.—Medical Wards—Diagnosis by Students under the Professor's eye.

11 A.M. to 1 P.M.—Diseases of Women and Children; Mental Disease.

2 to 5 P.M.—Gynaecological and Children's Dispensaries.

It is unnecessary to add that this time table is a mere suggestion by one who is only a spectator of medical teaching; but it is put forth with the hope that those who are engaged in the actual work of teaching may be induced to frame—and not only to frame, but to enforce—a better one.

CURRENT TOPICS.

THE PATHOLOGICAL AND CLINICAL SOCIETY.—The following cases and specimens will be shown at the ordinary meeting of the Society in the Faculty Library, 242 St. Vincent Street, on the 10th inst.:—Dr. Lindsay Steven—A mediastinal tumour, involving the root of the left lung and the pericardium, in which an attempt had been made to find fluid in the pleura. Professor M'Call Anderson—A case of paralysis and wasting of the left arm with anaesthesia, involving also the left side of the face. Professor Gairdner—A case of nerve disease with choreic movements; and Dr. Alex. Robertson will refer to a similar case shown as an "urgent" one at the last meeting. Dr. Finlayson—Microscopic sections of pyæmic abscesses in the liver, from a case of carcinomatous ulceration of the colon; also a cerebellar tumour from the case of a boy.

On the 17th instant a special meeting will be held for the exhibition of rare and interesting cases of skin disease. It is hoped that gentlemen, members or otherwise, who have cases to show will intimate their intention of doing so as early as possible, to one of the members of the specially appointed sub-committee—Professor M'Call Anderson, Dr. Napier, Dr. Steven, or Mr. Maylard.

A. ERNEST MAYLARD, *Hon. Sec.*,
4 BERKELEY TERRACE.

J. LINDSAY STEVEN, *Hon. Edit. Sec.*,
34 BERKELEY TERRACE.

GLASGOW SOUTHERN MEDICAL SOCIETY.—At a very large meeting of this Society, held on the 8th November, Dr. Edward Macmillan, of Pollokshields, was unanimously elected for the ensuing year as the first representative of the Society

on the Board of Governors of the new Victoria Infirmary, now in course of construction, at Queen's Park. The privilege of annually electing one of the Board of Governors has been extended to this Society in recognition of the very important part taken by the members in originating and promoting the scheme for additional hospital accommodation in the South Side of the City. Twenty-two years ago, the late Dr. Rice first drew attention to the want of a hospital for that district on account of the growing increase of the population and public works. At that time he read a paper to the Society on the "Hospital Accommodation of the City," in the course of which he referred to the necessity for a new hospital for clinical teaching on the completion of the University buildings, and he also treated of the proposal to erect a children's hospital, which had been mooted previously by more than one member of the Society. He suggested that a part of the new hospital in the West might be set apart for children. The scheme for the promotion of an infirmary on the South Side was again taken up, about five years later, by Dr. A. L. Kelly, and again in 1878, by Dr. Eben. Duncan and the members of the Southern Medical Society, when a committee was appointed and a subscription list started.

At the meeting of the Society, held on the 22nd November, the President, Dr. Glaister, read the opening paper of the session, on "William Smellie, His Life and Times." Born about the year 1697, the exact date being uncertain, Smellie was educated at the Grammar School of Lanark, to which he made a bequest of his library and portrait. He started as an apothecary in Lanark in the year 1720, and seemed to have practised medicine there without a qualification. The period of his practice in that town extended from 1720 to 1739, at the close of which he left for London. Smellie's teacher appeared to be John Gordon, surgeon, Glasgow. He was also very intimate with Cullen, from whom he obtained books on loan. Some have said that Smellie was unsuccessful in Lanark, but this did not seem to be correct, for he attended midwifery cases within a radius of 25 miles from the town. As his travelling companion to London, he had the genial author of *Roderick Random* and *Humphrey Clinker*, Tobias Smollett, M.D. Smellie was quite disappointed with what he saw in London, in the department of midwifery, the teachers of the time being Mowbray, Chapman, Sandys, Sir Richard Manningham, and James Douglas. He found he could learn nothing in London, and he therefore went to Paris, and studied under Gregoire, but

without benefit. He afterwards settled in London, and set up as a teacher and got many pupils. The source of Smellie's diploma was disputed. It was supposed to be from Paris. He wrote M.D. after his name shortly after settling in London. The Scotch diplomas of the time were mostly from Utrecht, Smollett's however, being from Aberdeen.

Dr. Glaister gave minute particulars about the subject of his most interesting paper, but it was found advisable to postpone the reading of the latter part of it to next meeting, which is specially important, as it contains a detailed list and description of the contents of Smellie's work, some of which will be exhibited.

GLASGOW SICK CHILDREN'S HOSPITAL.—Since the Dispensary was opened on the 1st October last, there has been admitted (up till the day of writing, 24th November, 1888), 308 new cases. During the same time the repeated visits have numbered 491, so that a total of 799 consultations have taken place since the date of opening. We are also informed that a larger number of students than usual are attending the wards of the hospital, and that the practice of the dispensary is being very considerably taken advantage of by students. Dr. Lindsay Steven has arranged to conduct a formal clinique on Saturdays, the number of gentlemen attending which has been limited to 15, and which will continue for three months. We understand that all the vacancies for the first three months have been filled up, and that a number of gentlemen have already intimated their intention of attending during the latter half of the session. Both at the hospital and at the dispensary the medical students of Glasgow have now an excellent field for gaining experience of the diseases of children, particularly of those varieties of the ailments of childhood which are never seen in a general hospital, and we strongly urge them to take advantage of it.

REVIEWS.

Anæsthetics: Their Uses and Administration. By DUDLEY WILMOT BUXTON, M.D., B.S. London: H. K. Lewis. 1888.

THIS manual is a well written practical work. For the use of students it is, perhaps, the best text book in our language.

The author rightly insists on the necessity for a practical

as opposed to a merely *theoretical* knowledge of the administration of anæsthetics. While, however, giving a large amount of praise to the book as a whole, we cannot agree with all the conclusions at which the author has arrived.

His laudation, *e. g.*, of the advantages supposed to be possessed by ether over chloroform, as regards safety, is not, we are convinced, justified by the experience of those who have given chloroform most frequently. Indeed, the author himself gives so many contraindications to the use of ether (which he considers so much safer than chloroform) that most readers will fail to realise wherein its so-called safety lies.

What busy practitioners want is a drug which can be used in *all* cases and at *all* times, and such a drug they undoubtedly have in chloroform. We are certain that in the hands of a careful, cool-headed, intelligent administrator (and all doctors should be such) no anæsthetic is safer than, and assuredly no one so generally useful as, chloroform.

Dr. Buxton's condemnation of the use of chloroform in dental surgery is altogether unjust; and his advocacy of repeated operations under nitrous oxide or ether, where many teeth require removal, is unwarranted. After having seen several thousands of such operations under chloroform, ether, ethidene, and nitrous oxide, we have unhesitatingly come to the conclusion that for such cases (the patient always, of course, being in the recumbent position) chloroform is the best agent to use, and that one operation is much less harmful to the patient than several, accompanied as these are by the repeated looking forward to and dreading such trying ordeals.

With these reservations, we have every confidence in recommending Dr. Buxton's work as an excellent text book.

Geschichte der Massage. Von DR. GEORG HÜNERFAUTH.
Berlin: Eugen Grosser. 1886.

THE author of this interesting history of massage discusses his subject with true German thoroughness. He points out that in early times, and even recently, massage has been confounded with general gymnastic treatment, and that the one is almost certain to overlap into the other according to the necessities of each case and the special practice of the attendant in charge. He finds that among the Indians and the Chinese gymnastic exercises and massage were in use many centuries before the Christian era, and quotes numerous

directions for treatment from the "Cong-Fou," one of the oldest of the Chinese sacred books. Tracing the practice onwards to the Egyptians, the Greeks, and the Romans, he notes with satisfaction that the most celebrated physicians of all ages have studied it closely and recommended it systematically. From the end of the fifteenth century onwards, the writers on massage (or rather on what would now be called by that name) became more and more numerous. Ling, in the early part of this century, perfected his Swedish gymnastic system, and though not a regular member of the profession, did more for the advancement of mechanical modes of treatment than any of his predecessors. In more recent times the prominence given to massage, and the scientific spirit in which it has been worked out especially in Germany, are well known and receive here ample notice.

Dr. Hünerfauth closes his valuable and most readable history with the advice that the practitioner should himself carry out the details of the treatment, and with an appeal for the proper teaching of massage to students in hospital.

Apart from its scientific interest this *brochure* has distinct value as a piece of antiquarian literature; while its lively anecdotal style renders it easy reading.

Homburg vor der Höhe und Seine Heilfactoren. Von DR. WILHELM DEETZ. Zweite Auflage. Wiesbaden: J. F. Bergmann. 1888.

WITHIN the space of 62 pages, we have here everything of importance relating to the position of Homburg as a health resort. Under the heading of "Topography," we find a discussion of its situation, soil, climate, vegetation, drainage, health statistics of permanent residents, &c.; and here also we learn that in this enchanting town new-comers sometimes find it difficult to sleep at first, a difficulty which is added to by the "bright light of the early morning hours and the early twittering of birds." The various mineral wells are then described—the Elizabeth, the Kaiser, the Ludwigs, the Luisen, and the Stahlbrunnen; copious analyses of their waters are furnished, prominence being here given to bacterioscopic examination, a matter of importance from modern points of view, from which it seems that the mineral waters of Homburg are absolutely free of bacteria. The manner of

using the waters is then described, with their physiological action and therapeutic uses.

It is interesting to note that the waters are contra-indicated in haemoptysis, gastric ulcer, chronic nephritis, acute and chronic catarrh of the urinary passages, menorrhagia, and ascites; they are to be used with care in cases of valvular defect, especially of aortic insufficiency. Asthmatic patients may find the place unsuited for them. The waters should be withheld during acute fevers and inflammations.

They are indicated in chronic catarrh of the alimentary tract, in habitual constipation, haemorrhoids, uterine displacements, enlargements of liver and spleen, in the gouty diathesis, in general obesity and plethora. In chlorosis and anaemia the tonic springs are serviceable.

Dr. Deetz's work may be commended to those who wish for a fairly complete account of Homburg in a compact and readable form.

The Student's Handbook of the Practice of Medicine, Designed for the Use of Students Preparing for Examination. By H. AUBREY HUSBAND, M.B., C.M., &c. Fourth Edition. Revised and Enlarged. Edinburgh: E. & S. Livingstone. 1888.

DR. HUSBAND's text book has now been in the hands of several generations of medical students, and the fact that it has reached a fourth edition indicates that it has met with a large amount of success. The present edition has been carefully revised, but it would be easy to take exception to many of the descriptions of disease, the condensation aimed at naturally preventing a thoroughly correct presentment of affections varying much in individual cases. As a grind book, however, it compares favourably with some others of its class. To a student who has read a larger work, it would be of service as putting in a condensed form a great deal of matter of which he already knows something. But it is not a book to which we would advise any student to confine his reading. There is no doubt a proper field for this kind of work, but there is always a risk that men may confide too much in them, and so present themselves for examination crammed with differential details as to diagnosis and treatment, while of the great principles of medicine they have acquired little knowledge, and of the subject as a whole they have but a feeble grasp.

Clinical Lectures on Diseases of the Urinary Organs, delivered at University College Hospital. By SIR HENRY THOMPSON, F.R.C.S., M.B.Lond. Eighth Edition. London: J. & A. Churchill. 1888.

THE present volume contains lectures delivered up to the session 1887-88, in all, numbering thirty-two. It has increased in size to more than twice the bulk of the first edition, published twenty years ago. The book now issued includes within its pages much of what is contained in the author's contribution on *The Supra-Pubic Operation of Opening the Bladder for Stone and for Tumours*, and also in his works on *Tumours of the Bladder*, *The Pathology and Treatment of Stricture of the Urethra and Urinary Fistula*, and *Diseases of the Prostate*. But in the volume we have now under review, not only is the information conveyed in an epitomised form, but by a careful revision the whole subject has been brought up to date.

Although the book is entitled *Diseases of the Urinary Organs*, it is more properly speaking a treatise on vesico-urethral surgery, as only a very small portion of the book—only one lecture—is devoted to renal calculus and the operations for removing it, while other surgical diseases of the kidney are not referred to. The whole question of diseases of the urethra, bladder, and prostate are considered systematically, the various modes of proceeding criticised, and the author's views expounded.

One complete lecture is devoted to the supra-pubic operation, and another to the value of exploring the bladder by perineal section of the urethra, as a means of diagnosis. The former operation the author recommends as incomparably superior for the removal of large stones and for tumours of the bladder, advancing the following reasons why the supra-pubic operation should be preferred to perineal section:—no important structures are divided, while the space for removing the stone is practically unlimited, and the act of doing so is free from danger, and, while the whole operation may be performed under the eye of the operator, there is little danger from haemorrhage, good drainage is afforded, and there is a possibility of keeping the wound aseptic. The value of digital exploration of the bladder for diagnostic purposes has been so well advocated and fully recognised that little can now be added to what has been said on the subject.

The book is remarkably well balanced and up to date,
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as all Sir Henry Thompson's works are. It is, therefore, superfluous to say anything in its praise, and we have only to add our hearty recommendation that those who have not read Sir Henry Thompson's former works would do well to become possessed of this his latest contribution to the study and treatment of diseases of the urinary tract.

Diseases of Man: Data of Their Nomenclature, Classification, and Genesis. By JOHN W. S. GOULEY, M.D., Surgeon to Bellevue Hospital. New York: J. H. Vail & Co. London: H. K. Lewis. 1888.

VARIOUS nosologies have been before the profession for many years, and the fact that no nosology yet constructed has been universally accepted by the profession, indicates that the difficulties in the way are very great. Dr. Gouley, however, has not been deterred by these. We cannot predict a great success for his attempt. His book strikes us as extremely pedantic. As an illustration of his "suggestions of a groundwork for the classification of diseases," we cite the first division — viz., "Alterations in the quantity, quality, and composition of the blood." Of these he enumerates thirty-four, including hyperleucontæmia (increase of blood albumen), hypoleucontæmia (decrease of blood albumen), hyperalnæmia (increase of blood salts), hyperphysæmia (increase of blood gas), hyperglycæmia (increase of blood sugar), hyperuricæmia (increase of blood uric acid), &c. We do not think this book will find many readers in this country.

REPORTS OF HOSPITAL AND PRIVATE PRACTICE.

CITY OF GLASGOW FEVER HOSPITAL, BELVIDERE.

A CASE OF TYPHUS FEVER COMPLICATED WITH HÆMATEMESIS—*post-mortem* EXAMINATION.—[Under the care of and reported by W. W. Christie, M.B., C.M.]

E. M'M., æt. 9, became ill on 29th February with headache, sickness, vomiting, and pain in the abdomen. On 6th March slight cough was noted. On 7th March she was admitted to hospital, when her temperature was found to be 98·6°, and

blood was seen to be trickling from the mouth. She appeared to be in a very weak state. An hour later she vomited about 2 pints of blood, complained of pain in the epigastrium, and extremities felt cold.

On 8th March A.M. temperature was 102°. About 7 A.M. she again vomited about 2 pints of blood. In the evening, temperature 98.2°; almost pulseless. Extremities cold; was very restless, and had subsultus tendinum; she was in a semi-unconscious condition, and died that night. The bowels were constipated throughout the illness. The rash was observed during life, but owing to the patient's condition she was disturbed as little as possible.

A *post-mortem* examination was made, and the following is the report:—

External Appearances.—There is a petechial rash over the body.

Heart.—Vessels on surface engorged; substance pale and flabby; the right side is full of blood, but the left contains little; the blood is perfectly fluid, and no clots are seen.

Lungs.—The posterior part of the left lung has a deep purple colour, and there are several areas of condensation in it. The right pleural cavity is obliterated by firm adhesions. A few indurated areas are felt in the right lung.

Stomach.—Contains some coffee-ground matter. There is no breach of surface of the mucous membrane, but there are numerous dark-coloured points all over, corresponding with the orifices of the gastric glands.

Intestines.—The small intestine, and more especially the ileum, contains a quantity of tarry-like matter, apparently altered blood. The large intestine contains a smaller quantity of the same. There is no ulceration of the Peyer's patches, nor of any other part of the bowel.

Liver, spleen, and kidneys are normal.

Bladder distended slightly above pubis.

Brain not examined.

On 9th March this girl's sister was admitted to hospital, and she proved to be a well marked case of typhus. The father was said to be recovering from an illness at home.

These facts, then, point to this being a case of typhus complicated with haemorrhage from the mucous surfaces.

Hæmatemesis is noted as an occasional complication of typhus by Murchison, and he mentions seven cases of this kind, with two recoveries. Four of the cases occurred in his own practice; the other three were noted respectively by Drs. Gairdner, Russell, and Perry.

MEETINGS OF SOCIETIES.**MEDICO-CHIRURGICAL SOCIETY OF GLASGOW.****SESSION 1888-89.****MEETING IV.—2ND NOVEMBER, 1888.****MEDICAL SECTION.****PROFESSOR M'CALL ANDERSON *in the Chair.*****I.—CASE OF BULBAR PARALYSIS, WITH AFFECTION OF OTHER PARTS OF THE NERVOUS SYSTEM.**

By MR. JOHN RITCHIE. (See page 430.)

Dr. Alex. Robertson said it was a considerable time since he saw this case, and the incidents connected with it had, to a considerable extent, passed from his mind. He saw him in March of last year, and in that interval there seemed for a time to have been an improvement, but again he seemed to have become very much worse. He was now evidently going downhill. There was a difficulty in articulation, but notwithstanding that, he was rather surprised to observe the way in which he spoke, while at the same time he was not able to protrude his tongue. He (Dr. Robertson) did not see his tongue distinctly, but he understood there was no particular wasting observed, which would seem as if the ninth nerve was not so much implicated after all. With regard to the seventh nerve, if it was affected, it was not very obvious. While he could not whistle, he could bring his lips together. The power of swallowing seemed fairly good, as did also the movements of the larynx. The optic nerves were evidently very seriously affected. Perhaps the most serious condition in the case at present was the wasting of the lateral columns, and the symptoms pointing to the medulla oblongata. He noticed that there was no wasting of the thenar and hypothenar eminences of the hand, while in bulbar paralysis we often had muscular atrophy of these eminences. He had a case in which the speech was much more affected than here, and along with it atrophy of the muscles of the hand. As regards causation, the family history was too suggestive—three miscarriages, and then this child with these symptoms showing themselves. The teeth were not typically syphilitic, and at the same time constitutional syphilis did not generally give

rise to bulbar paralysis. The symptoms here, however, of bulbar paralysis were not fully marked. They missed the wasting of the tongue and lips, and the saliva running from the mouth, so that it was not fully developed bulbar paralysis. It might be that there was a syphilitic basis here, and that the exciting cause was the subjecting of the head to pressure by carrying heavy weights.

Dr. J. Wallace Anderson said the interesting point in the case was the question it raised, whether it was a case of bulbar paralysis, or a case of disseminated disease of which bulbar paralysis was only a part. He had been very much struck with a remark of Bristowe's, to the effect that bulbar paralysis is disseminated sclerosis confined to the medulla oblongata. Why should bulbar paralysis be confined to that region and none other? He would hold very firmly that, if there was such a thing as bulbar paralysis as a substantive disease, then it could only be that and nothing else. Disseminated sclerosis might attack any part of the cerebro-spinal tract, and we might have bulbar paralysis as a part of it. A disseminated sclerosis of the nervous system was the view he took of this case, for the reason he had already given, that the lesion was not confined to the nuclei in the medulla oblongata, the affection of which we commonly call bulbar paralysis. If there was such a substantive disease, it was essentially a progressive disease—one of the diseases that might be called progressive, far more so than locomotor ataxy—and hence death might be looked for in a year or two. He would look upon this case as not a bulbar paralysis, but a disseminated disease of the nervous system of a syphilitic character, the medulla being affected more than any other part.

Dr. Workman would rather be inclined to say that it was not a case of disseminated sclerosis, for several reasons—the history was against it, and, at the present advanced stage of the case, the patient was quite able to lift a cup to his mouth and drink its contents without any tremor, which was such a prominent symptom in disseminated sclerosis. With regard to the state of the eyes, was it possible that this condition of atrophy could be due to inflammatory disease there, such as optic neuritis, or was it due to pure atrophy without neuritis? A double optic neuritis, one would be inclined to say, would be due to a tumour forming somewhere in the brain. Again, the disease might not be syphilitic but tubercular, situated somewhere about the medulla and pressing upon various parts, as these tubercular tumours were very peculiarly shaped, and gave rise to very varying symptoms. Then, besides, we had

the secondary degeneration of the lateral columns, producing this extensive irritability of the muscles of the lower limbs. He would also like to ask a question about temperature. Had he had any feverish attacks in the early stage of the disease?

Dr. Barlow would be inclined to look upon this case as one of multiple lesions. Looking to the affections of the cranial nerves, the condition of the lower limbs, and to the marked tenderness over the dorsal vertebrae from the fifth to the ninth, might not this indicate the presence of a commencing lesion of the spinal cord at that level, giving rise to a descending lesion? He believed if there were a continuous lesion from the medulla downwards, it would have affected the muscles of the upper limbs.

The President (Prof. McCall Anderson) said there were two points of interest—the seat of the disease and the nature of it. There was no doubt of the lesion in the medulla oblongata; there was therefore a bulbar paralysis, but there was no difficulty of swallowing, no nasal twang of the voice. Was there a lesion anywhere else? He must say he would be in favour of the view that they had not to deal with a single lesion here, but probably two or more lesions. As regards the nature of the lesion, there was very little doubt that it had a syphilitic basis. He was at once struck with the shape of the head; the prominent forehead is a thing you often see in subjects of hereditary syphilis, also the earthy pallor, often seen in syphilis. Then they had also to note that this was the first child after three miscarriages. The fact that the disease was caused by carrying heavy weights upon his head was simply the exciting cause, but syphilis the predisposing cause. It was rather interesting to know that the perchloride of mercury and iodide of potash did do a certain amount of good. To do good, the patient must be put thoroughly under the influence of mercury. He was not sanguine about any improvement being experienced in this case—the lesions might have produced secondary non-syphilitic lesions in the neighbourhood. For all that, he would be inclined to give him the benefit of the doubt, by putting him thoroughly under mercury, one drachm of mercurial ointment being rubbed into the skin daily, and this kept up for a considerable time.

Mr. Ritchie replied. The boy was early put on iodide of potassium, but he did not take it very long. He might say that the boy had frequently a feeling as if he were defecating, when it was not the case. On the other hand, he constantly passed his urine in bed.

II.—CASE OF SCLEROSIS OF THE SPINAL CORD.

By DR. GEORGE S. MIDDLETON. (See p. 433.)

Dr. Workman had seen a case just lately which resembled this case in some particulars. This was a girl who had had the symptoms for about four years; she was better now than she has been for a long time; she first had rheumatism, and then a definite attack of chorea; since then she had been subject to chorea-like movements of a very energetic character. He did not know what one would put this down to.

Dr. Alex. Robertson would be inclined to coincide with the suggestion thrown out by Dr. Middleton, that in this case there might be different points of attack. They had symptoms of the lateral columns being attacked, but the disease was probably not confined to that region of the cord. They knew that disease sometimes extended forwards to the anterior cornua, and sometimes backwards also, though they generally found it confined to certain strands of the cord. There was, therefore, probably a condition which involved the lateral columns, and extended backwards, inducing an irritation of the sensory fibres, which might account for the girdle sensation and the irritation about the urethra. The optic nerves were involved, the connections of which were a good bit away from the other indications of disease, so that probably they had a degeneration here of the optic nerves themselves. There was also a history of irritation affecting the facial. The lesion then probably was chiefly in the cord, but extending to other parts of the nervous system. In most cases of this kind it was best to give mercury in some form or other, because they might do some good, and might stumble upon the fact that syphilis was in the constitution.

The President (Prof. McCall Anderson) said that they were all agreed on the point that it was not a functional disease they had to deal with here, but an organic, and probably incurable disease. He had seen several cases in which the symptoms were very similar to this. It had many of the symptoms of locomotor ataxy, and the majority pointed to disease of the posterior columns; he had got the staggering gait very well marked; diplopia also very well marked. Perhaps, however, it was not limited to the posterior columns, but extended also to the lateral columns, which was not such a rare thing as one would be led to believe by one's reading. On the other hand, separate points of sclerosis might give rise to these symptoms. He believed that possibly there might be some syphilitic basis in the case.

Dr. J. Wallace Anderson said that, as examiner for Broomhill Home for Incurables, he saw possibly more than his share of chronic nervous affections. He had found that in these cases, when the patients got rest of body and mind, and into a position where they were well looked after, they were restored to a great measure of health in many cases, particularly so in locomotor ataxy. As far as his own limited experience went, he had come to the conclusion that locomotor ataxy ought not to be called progressive more than any other affection. He had several cases in his mind where rest at Broomhill Home had led to arrest of the disease. He knew one man whose symptoms commenced fourteen or fifteen years ago, and who had Charcot's joint disease and inability to walk, who, at Broomhill Home, had become very much better. In the case of any one who could afford rest to his body without any disturbance of his mind, a disease of that kind was likely to be arrested, and it would comfort a patient to be told so.

Dr. Middleton replied. He had found that rest had done good, but nothing in the way of cure. There was no history of syphilis, and no history of nervous disease in the family, except that he had a brother who had some peculiar feeling in his limbs. *Dr. M'Call Anderson* had suggested that it was in large measure a disease of the posterior columns, but there were other symptoms which were against that idea.

Dr. A. Sloan suggested that this would be a case which required further observation, and Broomhill Home would be the place, and offered any influence he possessed, as a Director of that Institution, to enable patient to become an inmate.

GLASGOW PATHOLOGICAL AND CLINICAL SOCIETY.

SESSION 1888-89.

MEETING II.—12TH NOVEMBER, 1888.

The President, PROFESSOR GAIRDNER, in the Chair.

I.—CASE OF PECULIAR MOBILE SPASMS.

BY DR. ALEX. ROBERTSON.

A PATIENT was shown suffering from very striking mobile spasms especially affecting the face, neck, and upper extremities. He is 36 years of age, and it is known that these dis-

orders of movement have troubled him since he was a boy. He can walk, but there is a degree of stiffness, with obvious weakness in walking. His condition looks very degraded, but he was stated to show a considerable amount of intelligence. A more minute description was reserved till next meeting. Dr. Robertson regarded the condition as one of athetosis.

II.—CASE OF SCROFULOUS TUBERCLE OF THE BRAIN, WITH TUBERCULOSIS OF THE LUNG.

By DR. JOSEPH COATS.

Dr. Joseph Coats showed a specimen of scrofulous tubercle of the brain. There were about 12 such masses in the brain, including cerebrum, cerebellum, and basal ganglia. They all consisted of the usual greenish-yellow caseous masses, each with a transparent zone of fresh tubercles at the periphery.

Dr. Coats also showed from the same case a specimen of tuberculosis of the lung in which the tubercles were distributed with a remarkable relation to the blood-vessels. On the cut surface a branch of the pulmonary artery is laid open, and it is seen that the tubercles look like the foliage of a tree of which this is the stem. A similar arrangement is visible in all parts, the tubercles being present in every region of the lung. In this case the morbid poison has obviously been carried by the blood and distributed by the finer arterioles.

III.—KIDNEY REMOVED BY NEPHRECTOMY.

By DR. H. C. CAMERON.

Dr. H. C. Cameron showed a kidney removed by him the same morning from the case of a girl in whom he had performed a nephrotomy last March for the evacuation of a large renal abscess. She then made an excellent recovery, but a urinary fistula persisted from which a very large quantity of urine daily escaped.

The President suggested that Dr. Cameron should bring up this case later on, and allow discussion to take place upon it. This was agreed to.

IV.—COMMUNICATED FRACTURE OF THE HEAD OF THE TIBIA.

By MR. A. E. MAYLARD.

A comminuted fracture of the head of the tibia was shown. The fissures passed through the articular cartilages on the

surface of the head. The semilunar cartilages remained intact, and the fibula was also uninjured. The injury appears to have been indirect.

V.—MICROSCOPIC SECTIONS FROM A CASE OF CARCINOMA
OF THE TONGUE.

BY MR. HENRY RUTHERFURD, M.B.

The sections are from the tongue of a woman aged 56, details of whose previous history are wanting, but who is known to have died, six months after removal of the half of the tongue, of involvement of the cervical glands.

On the under surface of the left half of the tongue there was an ulcer slightly excavated, with irregular but indolent floor. On cutting into this at right angles to the surface, the knife passed through a very dense tissue. This tissue is about $\frac{1}{2}$ of an inch deep with ill defined margins, contrasting markedly in this respect with what is seen in the specimen which I have brought to show a more characteristically formed epithelioma.

Microscopical examination shows in detail the differences between the two growths. In the latter we have an example of epithelioma of this part as commonly described. The tissue is occupied by closely arranged ingrowing columns of epithelial cells bulging and as it were budding, and containing numerous horny "nests." The outermost layer of cells is cubical rather than spheroidal, and is closely applied to the limiting wall of the space occupied by the epithelial mass. There is for the most part little intervening tissue. The extremities of the ingrowing processes are beset by crowds of round cells.

In the other set of specimens we have indeed an appearance of origin from the superficial epithelium, but this is almost the only point of resemblance in the two sets of sections. Occasional small groups of cells concentrically disposed are found, but nowhere have the cells composing these reached the horny condition seen so well in the other case.

With regard to the character of the epithelial cells, I have been unable to satisfy myself that they are in the parts chiefly concerned (that is where the indurated appearances and alveolar formation are most pronounced), distinctly of the spheroidal or the squamous type. But here, at all events, there is no peripheral cubical layer lining the alveolar walls, the cells are crowded together as if by the cicatrising of the surrounding tissue.

"Only one kind of carcinoma," says Mr. Butlin, "appears

primarily to affect the tongue. Cases have occasionally been described of soft or even hard carcinoma. But either no microscopical examination has been made, or the account of the minute structure completely disproves the assertion of the nature of the tumour." Of this fact, established by personal observation of a large number of cases as well as the examination of the statistics of others, Mr. Butlin is unable to offer any explanation, any more than of what seems the equal immunity of the tongue in respect of sarcoma.

The fact, however, being admitted, the approach to the type of hard cancer in the specimens before you is of considerable interest. I have labelled them "Epithelioma of the Tongue, with development of dense stroma in considerable amount and with alveolar formation."

Mr. Maylard said that he had seen microscopical specimens of this tumour shortly after the growth was removed, and at that time he was inclined to the opinion that it was really a scirrhouss carcinoma. He had, however, examined sections since, and he now felt that the tumour was of the ordinary epitheliomatous type with an unusually well developed stroma. The specimen was one of undoubted interest because, in the first place, of the distinct evidence of the epithelioma forming a tumour deeply in the substance of the tongue; and in the second, in the well marked stroma developed. Epitheliomata as a rule ulcerate before there is any definite formation of anything like a tumour.

Dr. Newman remarked that some years ago he had a case of scirrhouss carcinoma of the penis which resembled in a remarkable degree the specimen just shown by Dr. Rutherford, and that the two cases are of great interest on account of their great rarity. That scirrhouss cancer of the tongue and of the penis should be uncommon is probably accounted for by the circumstance that this form of cancer usually arises from the epithelioma of glandular structures, and not from surface epithelium.

A committee, consisting of Dr. Coats, Dr. Newman, Mr. Maylard, and Mr. Rutherford, was appointed to examine and report upon the specimen.

VI.—LARGE SARCOMATOUS TUMOUR OF THE CHEST FROM A CHILD.

BY DR. R. STEVENSON THOMSON.

There was exhibited a large specimen of sarcomatous tumour of the anterior mediastinum from a child of 10 years.

The mass was heart-shaped, weighed 3 lbs. 5 oz., and measured 7½ in. in its greatest length and 5½ in. in its greatest width. Within the thorax it occupied pretty much the position of the heart, but projected considerably towards the left side. The left lung was greatly collapsed, and the heart and vessels were carried over to the right side, so that during life the greatest cardiac impulse was felt below the right nipple. The signs closely simulated those of extensive pleuritic effusion on the left side; and on tapping, a small quantity of serous fluid was removed, but without causing any appreciable change in the signs. Throughout the case the tubular breath sounds were very distinctly heard over the whole of the left back, which was dull to percussion, but only very feebly over the situation of the tumour in front. A glandular tumour of the mediastinum was diagnosed. Microscopic examination showed the tumour to be composed of small spindle-celled sarcomatous tissue, combined with a large amount of very dense fibrous connective tissue.

Dr. Joseph Coats said that as the tumour was entirely covered with pleura, being perfectly smooth on the surface, he thought that it must have originated either in an organ lying free in the cavity of the pleura or else behind the pleura. In the former case there would probably have been such pressure on trachea and root of the lungs as to have led to definite symptoms. He was therefore more inclined to regard it as originating in the subpleural tissue. He was reminded of a case of retroperitoneal tumour which had occurred to him many years ago. The tumour was a very large one, and consisted of small spindle cells similar to those in this case. Such retroperitoneal tumours are not very rare, but a subpleural one is apparently very uncommon.

VII.—TROPICAL ABSCESS OF LIVER, WITH DYSENTERIC CONDITION OF LARGE INTESTINE.

By JOSEPH COATS, M.D.

The liver showed two abscesses, a large one in the left lobe, which it greatly distended, and a smaller one in the right lobe. The large one measured six inches in diameter, and was partially divided by a septum, which indicated that it had originally consisted of two. It formed a large fluctuating tumour which bulged downwards chiefly against the stomach, this organ being adherent and flattened out over its surface. There is almost no remains of liver tissue at the surface of the abscess, whose wall is, to a large extent, close to the surface

of the liver. In fact, the adherent stomach almost formed the wall of the abscess to some extent. There was pus in the lesser omentum. The abscess in the right lobe measured $2\frac{1}{2}$ inches in diameter, and it had advanced to the surface on the inferior aspect of the liver, where it impinged on the upper border of the kidney causing flattening, but not infiltration of that organ. The abscesses contained a thick, curdy pus and the walls showed a shreddy internal surface. Microscopic examination showed the wall to be formed by altered, and in some parts, necrosed, liver tissue.

The caput coecum was considerably contracted, its mucous membrane being largely replaced by a pigmented cicatrix. There were frequent ulcers throughout the colon, some of them having the appearance of ulcers originating in the closed follicles, others larger. There are two or three larger ulcers coated with shreddy sloughs.

The parts were from a Hindoo, *æt.* 55, who was admitted to the Western Infirmary and died in a few hours. It was reported that he had been ill for about three weeks, on board ship, with pain across the upper part of the abdomen and vomiting.

The President drew attention to the fact that Murchison described tropical abscess as single, and pyaemic as multiple. This case differed from that description, and this was a point which might be of importance in connection with treatment, when the desirability of tapping the abscess was being considered.

Dr. Dalziel wished to ask Dr. Coats whether it was possible to distinguish between the abscess described as "tropical" and other abscesses occurring in the liver; first, from these being single; and second, from the characters of the abscess walls; since many descriptions of the tropical abscess gave ragged ill defined walls indicative of rapid disintegration of the liver substance, while those in the specimen seemed to be the reverse, with fairly well defined walls almost amounting to a capsule.

VIII.—EXTENSIVE ULCERATION AND BRITTLENESS OF COLON, FOLLOWING AN OVERDOSE OF MEDICINE.

By JOSEPH COATS, M.D.

The parts shown were from the ascending and descending colon respectively. In the former there are large flat ulcers with abrupt edges, which appear as if almost punched out, but only extending through the mucous membrane. In the

descending colon they are more numerous and smaller, and they are mostly elongated along the circumference of the gut. They are closely set, frequently leaving a narrow bridge of mucous membrane, so that the appearance presented is that of a series of parallel ridges with the ulcers between. The ulcers not infrequently undermine the mucous membrane so as to form bridges. Ulcers were present in every part of the colon, and it was also very brittle, so much so that in removing the intestine several perforations were made, although great care was exercised. There was also some adhesion to surrounding parts, but the adhesions were not very firm.

The case was that of a woman who was admitted to the Western Infirmary complaining of pain in the abdomen and diarrhoea of three weeks' duration. She lived in the hospital for about six weeks, the pain and diarrhoea continuing in spite of treatment. The evening temperatures were febrile. The illness was referred by patient to an overdose of powders, whose nature could not be ascertained, but which were believed to be purgative. She was to receive one powder at a time, but her husband gave her five at once.

IX.—CASE OF DIFFUSE, COLLOID, CYLINDER-CELLED EPITHELIOMA OF THE STOMACH, ORIGINATING AROUND THE ENTRANCE OF THE OESOPHAGUS, WITH SECONDARY TUMOURS IN THE LUNGS AND OTHER PARTS, BUT NOT IN THE LIVER.

BY JOHN LINDSAY STEVEN, M.D.

The record of this case will be found as an original article at page 457.

The President remarked that the situation of the tumour in this case was undoubtedly exceptional.

Dr. Coats said he was interested in the colloid change which had overtaken the cylinder celled tumour in this case, and referred to a cylinder celled carcinoma of the lungs which he had recently examined, and in which the secondary tumours had undergone colloid metamorphosis, although the primary tumour had not.

ABSTRACTS FROM CURRENT MEDICAL LITERATURE.

S U R G E R Y.

BY MR. A. E. MAYLARD.

The Infection of Lymphatic Glands at a Distance from the Seat of Disease in Cases of Visceral Carcinoma. By Belin (*Centralb. für Chirurgie*, 28th July, 1888).—Virchow first drew attention to the subject by observing that in cases of carcinoma of the stomach the lymphatic glands above the left clavicle were sometimes involved. The author has collected cases from French and German writings, where glands, not in immediate lymphatic connection with diseased parts, were infected in carcinoma of the intestines. The author further observes that the detection of these remotely affected glands would prove of considerable importance in the question of operative interference, as no operation could be undertaken with a view to total extirpation of the disease. [Coming under the same category of cases, was one of infection of the left inguinal glands in a malignant tumour of the ovary which I recently saw. It was originally supposed they were glands enlarged from some inflammatory cause. On microscopical examination, however, they were of precisely the same carcinomatous structure as the ovarian tumour removed.—A. E. M.]

Ligation of Both Lingual Arteries for Congenital Macroglossia. By Fehleisen (*Berl. Klin. Wochenschr.*, No. 50, 1887).—Following the procedure which has been practised in cases of elephantiasis of the leg of ligaturing the femoral artery, the author attempted an analogous operation of ligaturing both lingual arteries in a child aged 13 months, affected with macroglossia. The result of the operation was that on the same day on which the vessels were ligated, the tongue, which had hitherto projected beyond the margin of the lips, assumed its normal size. On the second day it again enlarged, becoming in volume equal to its previous condition. It then, however, gradually diminished, so that at the present time (1 year after the operation), the point of the tongue lies between the teeth. The child can, however, when requested, withdraw the tongue behind the teeth and utter single words.—(*Centralb. für Chirurgie*, 4th August, 1888.)

Acid Sublimate Solution as a Disinfectant and Dressing. E. Laplace (*Deutsche Med. Wochenschrift*, 1887, No. 40).—Testing the asepticity of ordinary surgical dressings, the author found that out of 300 packets of sublimated wood wool, only 7 were free from micro-organisms. Of 100 samples of sublimated gauze tested, all were free from germs. He concludes that sublimated dressings may be free from germs, and usually are, but not always. He found that in non-albuminous fluids sublimate is a perfectly reliable disinfectant; but that in albuminous fluids, such as blood serum, it is not, owing to the precipitation of an insoluble mercurial albuminate. The precipitation can be prevented by the addition of a small proportion of hydrochloric acid, and the antiseptic action of the mercury retained; but owing to the volatility of the acid, substances prepared by this method and kept for any time lose their antiseptic value. The use of tartaric acid, however, gives perfect results both in laboratory experiments and in clinical work, as tested in Von Bergmann's practice. He also found that the antiseptic value of carbolic acid was heightened by the addition of a little hydrochloric acid. Some of his conclusions are—

1. We have, in the tartaric acid sublimate solution, a reliable disinfectant for wounds. Infected wounds should be irrigated with it for ten or twenty

minutes daily; for fresh wounds a single thorough application is sufficient. The solution for clinical use is—Sublimate, 1 part; tartaric acid, 5; distilled water, 1,000. That for the impregnation of dressings is—Sublimate, 5 parts; acid, 20; water, 1,000.

2. The sublimate dissolves more easily in the acid solution than in water.
3. These dressings remain aseptic throughout.
4. These dressings and solutions are cheap.—(*Centralblatt f. Chir.*, 18th February, 1888.)—D. M'P.

Case of Anthrax in a Pregnant Woman, with Fatal Infection of the Child. By F. Marchand (*Virchow's Archiv*, bd. cix, p. 86).—At the *post-mortem* of a woman, who died shortly after normal delivery with symptoms of collapse, there was found, instead of the expected internal haemorrhage, general infiltration—partly oedematous, partly chylous—of the mesentery and retroperitoneal tissue, engorgement of the larger mesenteric lymphatics and of the thoracic duct with blood and pus, enlargement of the spleen, enlargement and haemorrhagic infiltration of pelvic glands, and chylous ascites. Microscopic examination showed abundant anthrax bacilli in the lymph and chyle, and but few in the blood.

The woman had worked in a horse-hair manufactory, and had been in the habit, with the other workpeople, of breakfasting in the workroom. Cases of malignant pustule had occurred in the factory. For reasons fully discussed it was deemed probable that infection had taken place through the alimentary canal.

The child, born apparently healthy, became covered with livid maculae on the fourth day, and died the same day. The cause of death was anthrax, bacilli being found in the blood, especially abundant in that obtained from the right lung.—(*Centralblatt f. Chir.*, 18th February, 1888.)—D. M'P.

The Cause of Dislocation at the Elbow Joint in Children and Women. By Prof. Ferd. Petersen, of Kiel (*Centralblatt f. Chir.*, 14th April, 1888. Translation).—In his excellent treatise on Dislocation (*Deutsch. Chir.*, No. 26) Krönlein directs attention to a frequently observed predisposition of certain joints to displacement at certain ages, and to the frequent occurrence of dislocations at the elbow, and rare occurrence of dislocations at the shoulder, in children. He shows that direct dislocation at the shoulder in adults corresponds to fracture of the clavicle in children, and indirect dislocation at the shoulder in adults to dislocation at the elbow in children. I believe this view is correct, but that his explanation is somewhat forced. He supposes that an adult in act of falling fixes the elbow joint, by strong action of all the muscles of the upper arm, rigidly in a position either of extension or slight flexion, so as to oppose any tendency to over-extension that might produce dislocation. The arm would thus act as a long lever, and the shock would fall upon the shoulder joint, which, being the freest in movement, is the most difficult to fix. The child has neither presence of mind, strength, nor intelligence enough to prevent such over-extension by any muscular action.

I believe that another explanation is more correct. In very many—I may almost say most—children not only passive but active over-extension of the elbow is possible, the forearm forming an obtuse angle posteriorly with the upper arm. By a fall upon the arm thus outstretched, the angle tends to be lessened, and the dislocation is produced. It is in the same way that partial dislocation of the head of the radius occurs so frequently.

This power of over-extension of the elbow is also found in later life in persons with weak muscles, and very often in women. If my explanation is the right one, then we should find the same liability to this special form of injury in women, and this is what actually occurs. According to Krönlein's statistics, dislocations at the shoulder and at the elbow occur with equal frequency (23 to 23) in women, while in men the former occurs more than twice as often (184 to 86) as the latter.

That over-extension of the elbow joint does favour dislocation cannot be

doubted. It will be desirable in future cases of such injury to find out whether the patient is able to do it. My observations convince me that the ability is more frequent among women than among men, and still more so among children.—D. M'P.

A Case of Focal Epilepsy Successfully Treated by Trephining and Excision of the Motor Centres. By Drs. Lloyd and Beaver, Philadelphia (*The International Journal of the Medical Sciences*, November, 1888).—The patient, aged 35 years, had, when 15 years old, a blow upon his head with a ball bat. He became unconscious, and was confined to bed for one week. His fits did not begin until six years after. At this time they occurred exclusively at night; but, nine months after the appearance of what was supposed to be the first (from the fact of his having bitten his tongue), they commenced to occur during the day. They then gradually increased until they reached 28 in the day, and the patient seemed to be passing into a true epileptic status. The onset of these seizures—upon which special stress was laid both in the diagnosis and subsequent surgical treatment—was always the same, and verified by numerous observations. The left hand, especially the two fingers, was the seat of the signal symptoms, both sensory and motor; and however varied the extent of the convulsions were in different seizures, there was never any variation from this constant irritation. In Dr. Lloyd's opinion the nature of the irritative lesion was not very clear, although he was inclined to think it might be old scar tissue and thickened membranes, the results of his injury. The operation performed by Dr. Beaver consisted in the removal with an ordinary sized scalpel, held perpendicularly, of three pieces of brain tissue, each $\frac{3}{4}$ in. in depth, one $\frac{1}{2}$ in. square in size, from the back of the fissure of Roland, and two smaller portions anterior to the same fissure. The report of the case three months after states that he has had no convulsive seizures, and has recovered somewhat the paralytic conditions. The muscles specially paralysed in the arm are the flexors of the fingers.

The case is extremely well reported, and deserves a more extended abstract than it has been possible to give.

Electro-Puncture in Parenchymatous Goitre. By Dr. H. Weinbaum, Kovel, Russia (*Vratch*, No. 27, 1888).—“The author describes two cases of soft goitre permanently cured by electrolysis. The treatment consisted in galvanic electricity, applied for from ten to fifteen minutes at a sitting, and supplied by a battery of 20 cells connected with two golden needles, which were thrust several millimeters deep into the tumour at two diametrically opposite spots. Only moderately strong currents were used. In all, 150 sittings were made in the course of eight months. The tumour gradually dwindled away. When seen lately, about a year after the end of the treatment, the patient was in flourishing health; not a trace of the swelling could be detected. In the second case only a slight tumefaction about the right lobe remained after 50 sittings. Dr. Weinbaum tried the same plan also in a case of dense fibrous goitre, but failed to obtain anything beyond a trifling diminution of the cervical circumference, though more than 200 sittings had been made.”—(*Annals of Surgery*, October, 1888.)

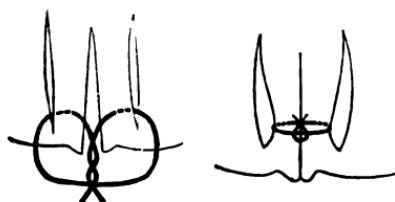
The Treatment of Fractures about the Elbow Joint. By Dr. C. Lauenstein (*Centralbl. für Chir.*, No. 24, 1888).—In fractures occurring at the lower end of the humerus, T-shaped fractures running into the joint, and oblique fractures passing through the condyles, the author advocates the limb being placed in the extended rather than in the flexed position, as usually taught. In one case he had the opportunity of examining, *post-mortem*, an old healed fracture of the lower end of the humerus which had been set in the rectangular position. It was impossible to extend the joint, and it was noticed that this was due to a high degree of callus thrown out around the parts. Still further, it was observed that the apparent flexion of the joint at the time of setting the fracture was due, to a large extent, to the bending forwards of

the lower fragment, and not to real flexion at the joint. On account of this displacement Lauenstein has for the last six years always set these fractures in the extended position of the arm, and with good results. He recommends it in preference to the common practice of placing the arm in a rectangular splint.

Sponges for Surgical Use. (*The College and Clinical Record*, January, 1888).—"As sponges are important articles in surgery, they should be clean and white. A pound of small sponges can be purchased for a small sum, and will go a good way in private practice. The following is a convenient and short way to bleach them. First beat the sponges on a flat surface to break up any large pieces of calcium deposit, then place them in dilute hydrochloric acid (1 to 10) for a few hours, and shortly the lime disappears, and they are ready to be thrown into a solution of permanganate of potash (3*i* to 6*iv* of water). Stir well for five minutes, and change to a solution of oxalic acid (3*i* to 6*iv*); wring out and repeat in the solution of the same strength with the addition of hydrochloric acid, 3*ss*; by this time sponges are generally very clean and white and but little damaged. The oxalic acid can be washed out by passing the sponges through water several times, and they are ready for the antiseptic solution."—(*International Journal of Surgery and Antiseptics*, April, 1888.)

Cheiloplasty.—At the Seventeenth German Surgical Congress, April, 1888, Jul. Wolff, of Berlin, brought forward two cases of harelip and cleft palate, successfully operated upon by him, at a very early age. He holds that surgeons should aim at devising the best methods of operating at the earliest possible age, so that the mortality among these deformed children may be lessened by restoring to them the normal conditions of respiration and alimentation. The four conditions to success in this he believes to be—

1. Minimising bleeding by compression.
2. Thorough cleansing of the wound by Rose's method of irrigation with the head inverted.
3. Dividing the operation into stages; first forming and freeing the flaps, and then, from five to eight days later, putting in the stitches, thus giving time for establishment of good circulation and nutritional processes in the flaps, and making the operation less severe upon the child.
4. The use of accessory or supporting stitches of silver wire, introduced through lateral incisions.



the incision and the middle line, and the two ends twisted together. This form of suture brings the flaps well together, relieves tension upon the superficial sutures, and is very easily removed without straining the parts.—(*Beilage zum Centralbl. f. Chir.*, 1888, No. 24.)—D. M'P.

Rotation of Ovarian Tumours. By J. Knowsley Thornton, M.B. (*The International Journal of the Medical Sciences*, October, 1888).—In this paper the author deals with the subject in reference to its etiology, pathology, diagnosis, and treatment, and while drawing largely from various sources, contributes some 57 cases of his own. The facts which the author's tables seem to establish are thus briefly recapitulated. Rotation of ovarian tumours is of frequent occurrence. It occurs with greater frequency during the period

of active menstrual life than at the two extremes, and more often in married than in single women. It is so frequently associated with pregnancy that this condition must be considered a predisposing cause. Adhesions are the rule whenever the acute stage has been reached, and slight twisting does not seem to cause adhesions. It frequently happens that the circulation throughout the pedicle is entirely cut off, but a fresh blood supply is usually rapidly obtained through the adhesions. There is no certain evidence as to the motor force which first starts the rotation, and it seems improbable that this can ever be exactly settled, but probably different causes may act in different cases. The steps of the process seem to be gradual rotation without symptoms or serious pathological change, then sudden serious symptoms with rapid increase of the tumour, then decrease or complete cessation of growth followed, sooner or later, by renewed activity, as the circulation through the adhesions becomes free enough to replace the diminution or arrest of that through the pedicle.

EPIDEMIOLOGY.

By A. K. CHALMERS, M.D.

Scarlatinal Albuminuria in relation to Diminished Air-Space.—Mr. R. D. R. Sweeting, Medical Superintendent of the Western District Hospital, London, in reporting to the Statistical Committee of the Metropolitan Asylum Board on the increase in the number of cases of scarlet fever complicated with albuminuria, presents some tables which are of interest.

TABLE A.—1882-87.

Year.	No. of Completed Cases.	No. of those with Albuminuria.	Rate per cent.	Remarks.
1882	64	9	14.0	Heat and nitric acid used as test.
1883	248	61	24.5	Picric acid used in early part of year.
1884	89	17	19.1	Picric acid exclusively.
1885	180	39	21.6	Do. do.
1886	343	101	29.4	Do. do.
1887	1,046	366	34.9	Do. do.

The incidence of albuminuria in the several quarters of the year 1887 is given in

TABLE B.

Quarter of Year.	Nos. Admitted.	Nos. attacked with Albuminuria.	Rate per cent.	Remarks.
First, . . .	160	56	35.0	...
Second, . . .	160	47	29.3	...
Third, . . .	371	148	39.8	Drafting.*
Fourth, . . .	424	146	34.4	Do.
Whole Year, .	1,115	397	35.6	...

* Drafting convalescents began in August, and was continued all the next quarter.

It is seen that in 1887 the large increase of the rate in the third quarter was coincident with a large increase in the number of admissions, though antecedent to drafting; and that a high rate was maintained (but slightly

diminished) during the fourth quarter, in which the admissions still continued to increase, and while drafting was continued.

Seasonal influence is investigated in the years 1883-86, and tabulated as follows:—

• TABLE C.—ALBUMINURIA QUARTERLY, 1883-1886.

Year.	1ST QUARTER.		2ND QUARTER.		3RD QUARTER.		4TH QUARTER.	
	Admissions.	Albuminuria.	Admissions.	Albuminuria.	Admissions.	Albuminuria.	Admissions.	Albuminuria.
1883	28	9	54	8	66	11	49	6
1884	38	7	2	...	...	...	74	9
1885	41	7	53	12	74	10	53	13
1886	53	12	65	26	143	40	159	37
1883-86	160	35	174	46	283	61	335	65
Total rate per cent,		21.8		26.4		21.6		19.4

The highest rate is in the second quarter, not the third, as in 1887. Both 1886 and 1887 show a great increase in their albuminuria rate, and as the rise in one is in the second quarter, and in the other in the third quarter, it follows that season cannot be regarded as a common factor in the causation of the increase in these two years, and must be eliminated as an efficient agent in its reproduction.

The relation in time of drafting convalescents in 1887 and the rise of albuminuria has been roughly indicated in Table B. A few cases were transferred in August, but only from 25th September were convalescents regularly and continuously transferred to Winchmire Hill establishment, at the average number of nearly 30 a week. The albuminuria incidence in both periods of the year, before and after drafting, is as follows:—

Before Drafting.—1st January to 25th September, 618 cases; 227 with albuminuria; rate per cent, 36.7.

After Drafting.—25th September to 31st December, 497 cases; 170 with albuminuria; rate per cent, 34.2.

Drafting *per se* therefore cannot be accused of aiding in the production of the albuminuria increase, though, inasmuch as maintenance of the high albuminuric rate was associated with increase of admissions and with diminution of cubic space, it would be difficult to separate this factor of drafting from others.

A possible explanation of the increase being that it was due to inadequate ventilation of the wards as opposed to diminished cubic space, the following test was applied:—Two female wards (3 and 4) were kept at their usual conditions of ventilation, while another female ward (2) had the ventilation increased to the utmost possible limit compatible with safety to the patients and nurses. All the ventilators, and in addition alternate windows, top and bottom, were kept open day and night. The cases were distributed on admission as equally as possible, having due regard to age, among these three wards from 28th November, 1887, to 27th January, 1888, with results as follows:—

Ward.	Admissions.	Albuminuria.	Rate p. cent.
No. 2,	35	23	65.7
,, 3,	37	22	59.4
,, 4,	41	17	41.4

So that the rate was greater rather than less in abnormally freely ventilated wards.

The observed increase of scarlatinal albuminuria has been real, while the season of the year and inadequate ventilation have both been eliminated as factors in its production. If such a question begging explanation, as that increased albuminuria is a character of the present scarlatinal prevalence, or such an intangible proposition as that it is part of the "epidemic constitution" of London scarlatina to manifest this phenomenon at certain times, be excepted, nothing appears to remain but diminished cubic space to account for it. The patients were of the same class as in former years; the therapeutic treatment was the same; the same chemical tests have been employed; and the urine examined at the same intervals and by the same class of persons; and yet the rate of incidence of albuminuria has increased. With what has this been associated? In 1887 the rise took place in the third quarter, the admissions per week having increased from an average of 12 to one of 30. The wards became crowded, extra cots were placed in them, so that wards originally sanctioned for 24 patients were made to contain 32, 33, and 34. This association of diminished cubic space with increase of albuminuria may have been only a chance affair, but it seems rather to stand in the relation of cause and effect; and such inference was strengthened by the circumstance that at the date of reporting, owing to the falling off in admissions, no ward contained more than 24 patients, and the number and percentage of cases presenting albuminuria had greatly diminished. A similar experience in the London Fever Hospital is related by Dr. Thorne Thorne in the *Practitioner* for 1st December, 1887.—(*Practitioner*, August, 1888.)

Small-Pox.—**The Limit of Atmospheric Contagion.**—M. Crèquy, in two interesting communications to the French Academy of Medicine, discusses the propagation of variolous infection by the atmosphere, and the limit within which secondary centres of infection may, by this means, be formed. The conditions which he describes give to the facts related by him the value of test observations. A small-pox hospital was erected, outside the fortifications, in the Commune d'Aubervillers, by the Municipality, while inside the lines is a large work of the Gas Company of Paris, employing some hundreds of workmen. Shortly after the hospital was occupied, 14 of the workmen were attacked with small-pox, and till the date of reporting 30 other cases arose, 11 of the total number attacked succumbing to the disease.

In considering the incidence of the disease among the workmen, M. Crèquy points out that the men employed in different sections of the work were not attacked in the same proportion. A ground plan of the hospital and gas work is introduced, showing that, of 500 men engaged at the "producers," distant 230 metres from the hospital, 38 were attacked and 10 died; in the smithy, employing 120 men, and distant 500 metres, 2 were attacked; in the brickwork, at 350 metres distance, of 72 workmen, 1 was attacked; in the coke-producers, at 530 metres distance, of 220 men employed, 1 was attacked; and of 240 men engaged at the tar producers, situated at 510 metres distance, 2 were attacked. In the section "chemical products," at 770 metres distance, 72 men were employed, but none were attacked. The gas-producers are separated from the hospital by the fortifications and adjoining road. Five hundred men employed here contributed 38 cases; while the 700 men employed otherwise as described only supplied 6 cases, and M. Crèquy insists that the proximity of the former to the hospital accounts for the larger proportion of the cases falling among those thus engaged. Had contagion reached the workmen by any other way than by the atmosphere, M. Crèquy believes that the cases would have been distributed more equally. Besides, the gas producers are in the most isolated part of the works. Public safety requires that a zone of isolation of about a kilometre should surround each small-pox hospital.—(*Gazette des Hôpitaux*, 11th September, 1888.)

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